there any synergistic effects between the two interventions. At 1 year, patients cared for by an outpatient geriatric team had better scores on the SF-36 mental health subscale, even after adjustment for the score at discharge, than those assigned to usual outpatient care. Total costs at 1 year were similar for the intervention and usual-care groups. This study suggests the quality-of-life benefits of geriatric interdisciplinary team care. Although geriatric interdisciplinary team care did not have an impact on overall survival at 1 year, preserving function and improving mental health are consistent with the goals of care for frail older adults.

Another randomized clinical control trial demonstrating the positive effects of team care included 128 veterans, age 65 years and older, who were outpatients in a primary care Geriatric Evaluation and Management Unit (GEM) (Burns, R., et al., 2000). This study investigated the outcomes of patients who were randomized to outpatient GEM or usual care (UC). Two-year follow-up analyses were based on the 98 surviving individuals. Study outcome measurements included health status, function, quality of life, affect, cognition, and mortality. The results, after 2 years, demonstrated positive intervention effects for eight outcome measures, five of which attained significance at 1 year. GEM subjects, compared with UC subjects, had significantly greater improvement in health perception (p < .001), smaller increases in numbers of clinic visits (p < .019), improved instrumental activities of daily living (IADL) (p < .006), improved social activity (p < .001), greater improvement in Center for Epidemiologic Studies-Depression (CES-D) scores (p < .003), improved general well-being (p < .001), life satisfaction (p < .001), and Mini-Mental State Exam (MMSE) scores (p < .025). There were no significant treatment effects in activities of daily living (ADL) scores (p < .386), number of hospitalizations (p < .377), or mortality (p < .155). These findings suggest that a primary care approach that combines an initial geriatric interdisciplinary comprehensive assessment with long-term, interdisciplinary outpatient management may significantly improve outcomes for targeted older adults. In addition, Burns and colleagues have demonstrated the sustainability of positive geriatric interdisciplinary team outcomes over time.

The success of team care has also been demonstrated by investigating service utilization, including rehospitalizations, office visits, emergency department visits, and nursing home admissions (Sommers et al., 2000). A controlled cohort study of 543 patients in 18 private office practices of primary care physicians was conducted to examine the impact of a team intervention involving a primary care physician, a nurse, and a social worker for community-dwelling seniors with chronic illnesses. The intervention group received care from their primary care physician working with a registered nurse and a social worker, while the control group received care as usual from their primary care physician. The outcome measures included changes in number of hospital admissions, readmissions, office visits, emergency department visits, skilled nursing facility admissions, home care visits, and changes in patient self-rated physical, emotional, and social functioning. From 1992 (baseline year) to 1993, the two groups did not differ in service use or in self-reported health status. From 1993 to 1994, the hospitalization rate of the control group increased from 0.34% to 0.52%, while the rate in the intervention group stayed at baseline (p < .03). In the intervention group, mean office visits to all physicians fell by 1.5 visits compared with a 0.5-visit increase for the control group (p < .003). The patients in the intervention group reported an increase in social activities compared with the control group’s decrease (p < .04). With fewer hospital admissions, average per-patient savings for 1994 were estimated at $90, inclusive of the intervention’s cost but exclusive of savings from fewer office visits. This geriatric interdisciplinary team model of primary care shows potential for reducing the utilization of health care services and maintaining health status for older adults with chronic illnesses.

The effectiveness of geriatric interdisciplinary team care is dependent on the process of team functioning (Drinka & Clark, 2000;
Farrell, M., Schmitt, & Heinemann, 2001). Well-developed team skills are necessary for clinicians to represent their various disciplines when developing a geriatric interdisciplinary care plan (Farrell, M., et al.). Geriatric interdisciplinary team care has been shown to improve patient outcomes through the development of team skills and a willingness to collaborate more effectively (Grant, Finocchio, & the California Primary Care Consortium Subcommittee on Interdisciplinary Collaborative Teams in Primary Care, 1995; Drinka & Clark). The process of team functioning is dependent on the team skills and attitudes of the individual team members, their ability to identify ineffective team behaviors, and their ability to develop an interdisciplinary plan of care (Drinka & Clark; Heinemann, Schmitt, & Farrell, 1994).

In addition to team skills, positive attitudes toward health care teams contribute to effective geriatric interdisciplinary team care (Leipzig et al., 2002; Farrell, M., et al.). Attitudes toward geriatric interdisciplinary team care of nurses, physicians, and social workers have been shown to have an impact on team success, as reflected in, for example, hospital readmission rates (Sommers et al., 2000). Negative attitudes toward geriatric interdisciplinary team care that contribute to sources of team conflict include: (a) differing disciplinary and personal perspectives, (b) role competition and turf issues, (c) differing interprofessional perceptions of roles, (d) variations in professional socialization processes, (e) physician dominance of teams and decision making, and (f) the perception that physicians do not value collaboration with other groups (Abramson & Mizrahi, 1996; Leipzig et al., 2002).

In 1995, the John A. Hartford Foundation of New York City funded the Geriatric Interdisciplinary Team Training (GITT) program, a large multisite national team training program designed to create models to train 2,500 health care professionals in interdisciplinary team care. From 1997 to 2000, the eight GITT sites measured the effectiveness of this training intervention by conducting a prepost training evaluation of the GITT participants. The GITT program was foremost a training model and therefore the core measures that were collected were focused on the trainees, the ultimate unit of analysis. The purpose of the core measures was to evaluate the effectiveness of the intervention, the team training program.

The results from the GITT study demonstrated an overall effect of GITT training at posttest on measures of attitudinal change, change in test of geriatric care planning, and the test of team dynamics (Fulmer, Hyer, et al., 2004). Changes were greatest for attitudinal measures including team skills and modest for knowledge changes in geriatric care planning and test of team dynamics. At the level of the individual variables, significant changes were observed between the pre- and posttest mean scores for overall team skills scale and for the overall attitudes scale and each of its subscales. The GITT program serves as a model for implementing and evaluating geriatric interdisciplinary team training programs.

The need to improve the effectiveness of geriatric interdisciplinary team care has never been more urgent than in today’s health care environment. Providing comprehensive care to older adults with multiple illnesses, disabilities, increased social problems, and fragmented care compounds the demographic imperative we face in our aging society. Effective geriatric interdisciplinary team care has been shown to improve patient outcomes by improving functional status (Sommers et al., 2000), perceived well-being (Boult et al., 2001; Knaus et al., 1996), mental status and depression (Eng et al., 1997). In addition, effective geriatric interdisciplinary team care has been shown to reduce medical errors (IOM, 2001).

Ellen Flaherty

**Geriatrics**

The term *geriatrics* evolved from the Greek word *geras*, “old age,” and it refers to the branch of medicine that covers the diagnosis
and treatment of the diseases and syndromes that occur primarily among older people. A board-certified medical practitioner of geriatric medicine is called a geriatrician. In the lay press the term has sometimes been overgeneralized to include comprehensive health care and preventive services for older adults, but this blurs the original meaning of the term.

In the specialty of nursing devoted to care of the aged, there has been considerable linguistic confusion and philosophical controversy about what to call the practice specialty. Various attempts were made to clarify and specify terminology and make the terms fit the consensual philosophy and goals of practitioners within the specialty, but no term has been found that pleases everyone.

A specialty referred to as geriatric nursing was first suggested in an anonymous 1925 editorial, “Care of the Aged,” in the *American Journal of Nursing*, and the first nursing textbook on the topic was published in 1950. However, the actual birth of the specialty occurred in 1962, when the American Nurses Association (ANA) formed the Conference Group on Geriatric Nursing Practice. In 1966 the ANA officially created the Division of Geriatric Nursing, and in 1976 the name was changed to the Division of Gerontological Nursing (ANA, 1982). The ANA published the first set of *Standards of Practice for Geriatric Nursing* in 1970. The *Journal of Gerontological Nursing* began operation in 1973, and *Geriatric Nursing: Care of the Aged* was first published in 1979. The ANA division’s name change and the titles of these two journals reflect the ongoing debate about proper terminology for the nursing specialty.

Many people rejected the term *geriatrics* because it did not properly reflect nursing’s interest in the entire continuum of health and disease, including health promotion, disease prevention, care of acute illness, and long-term care. Others rejected it as a medical term that did not convey inclusion of the art of nursing.

Although the ANA division’s name change to the Division of Gerontological Nursing pleased some nurses, others said it introduced a new error in terminology. The main criticism about this new label was that gerontology refers to the study of or science-work about the aging processes and the biological, psychological, sociological, and economic experiences of normal aging (Lueckenotte, 1996). Using an “ology” term did not logically lend itself to the name of a clinical specialty in a practice field. This problem led some leaders in the field to lobby for the term *gerontic nursing* to identify the specialty. Gerontic nursing as defined by Gunter and Estes (1979) is more philosophically palatable than geriatric nursing and more linguistically correct than gerontological nursing. Gerontic nursing was defined as a nursing specialty that includes the art and practice of nurturing, caring, and comforting older adults. Supporters of this term maintained that it included both the science and the art of nursing. Detractors argued that it left out health promotion and disease prevention.

A review of the titles of the most popular clinical textbooks in nursing today still shows considerable ambivalence. Nursing textbook titles include: geriatric nursing, gerontological nursing, clinical gerontological nursing, gerontologic nursing, gerontic nursing, and care of the aged; however, the latter three are less in evidence than a decade ago. Interestingly, the National Institute on Aging at NIH (2004) acknowledged the single-term dilemma by naming its clinical research program the “Geriatrics and Clinical Gerontology Program” (GCG). The Geriatrics branch supports research on health issues of the aged, including disease and disability in older persons—both specific conditions and multiples morbidities. The Clinical Gerontology branch sponsors research on clinically related issues regarding aging and research on aging changes over the life span.

An ideal term for the nursing specialty would cover the full range of knowledge needed and services to be provided in this practice field that has age of client as its sole parameter. The specialty is practiced at all levels of the health continuum, with persons who are aged 60+ to 115+, in any and all types of settings where older adults are to be found, and for periods of time that stretch...
from minutes to decades. Finding a fitting replacement for the term geriatrics or geriatric nursing has already challenged some of the best minds in the profession for over 40 years. The search for a single ideal term is not likely to end soon.

Even without a clear title for the specialty, nurse researchers have made significant contributions to knowledge about older adults across the spectrum from health promotion through end-of-life care. As genetic knowledge and stem cell research opens new vistas for inquiry, myriad unanswered questions about preventing and arresting the chronic illnesses and disabilities of old age will provide ample fodder for the fertile intellects of present and future nurse scientists for many years to come.

JOANNE SABOL STEVENSON

Gerontological Advanced Practice Nursing

During the last 3 decades, research examining the proliferation of Advanced Practice Nurses (APNs) has demonstrated that APNs improve quality of care, increase patient and staff satisfaction, while being cost effective across health care settings (Feldman, Ventura, Crosby, 1987; Master et al., 1987; Miller, S. K., 1997; Naylor, Brooten, et al., 1999; Ramsay, McKenzie, & Fish, 1982; Sox, 1979; Spitzer et al., 1974).

During the late 1960s to 1970s graduate nursing programs began developing specialities in gerontological nursing. GAPN is an umbrella term referring to Geriatric Nurse Practitioner (GNP) or Gerontological Clinical Nurse Specialist (GCNS). Currently there are near 4,000 certified GNPs and over 1,000 certified GCNSs (American Association of Colleges of Nursing, 2004). GAPN subgroups presently require gerontological-focused graduate education. Traditionally, GCNS roles include educator, researcher, practitioner, manager, and consultant. In addition to the GCNS roles, GNPs have the ability to conduct advanced health histories and physical assessments make diagnosis, and prescribe appropriate medical treatments—including pharmaceuticals within a collaborative agreement with a physician. Scopes of practice for both vary between states. Literature demonstrates more similarities between nurse practitioners (NPs) and clinical nurse specialists (CNs) than differences. Nursing leaders are currently debating role integration (Fenton & Brykczynski, 1993; Soehren & Schumann, 1994; Lincoln, P. E., 2000).

The literature reported APNs favorably influence health care outcomes such as: mortality, morbidity, length of stay, functional status, mental status, stress level, and patient satisfaction, burden of care, and cost of care. Overall, studies demonstrated consumer acceptance and satisfaction with NPs, physician comparative quality of care, increased productivity, cost savings, saved physician time, effective management of both preventive and chronically ill care, and improved patient education (Feldman et al., 1987; Naylor, Munro, & Brooten, 1991).

The GAPN role impacts the quality of care in long-term care (LTC) populations by decreasing hospitalizations, reducing pharmaceutical usage, and improving patient-family-staff satisfaction. GAPNs hold an essential role in reducing restraints in the nursing home population (Evans, L. K., et al., 1997). Most notably, the GAPNs provide cost-effective quality care. Using a quasi-experimental design, Kane and colleagues (1989) compared data of pre- and post-GNP time periods in 60 nursing homes (30-GNP; 30-control) dispersed throughout eight western states and discovered that GNP provided cost-effective care to residents primarily by reducing hospital utilization. Another study, a 1-year retrospective data analysis for 1,077 LTC residents, compared 414 residents followed by GNP/MD teams and 663 residents followed by MDs alone. Patients of the GNP/MD teams yielded a $72 per resident per month savings (Burl, Bonner, Rao, & Khan, 1998).

GNPs may succeed in nursing home management. Grzeczkowski and Knapp (1988) evaluated a 120-bed nursing home after a
GNP became the Director of Nursing. Their findings demonstrated decreased medication usage, lower rates of urinary/respiratory tract infections, decreased utilization of indwelling urinary catheters, and less decubiti. GNP's extensive geriatric education and ability to work well within interdisciplinary teams yielded effective patient care.

GAPN education, focused on geriatric issues such as falls, restraint usage, delirium, polypharmacy, and normal versus abnormal physical changes, carves a vital role in acute care management of frail older adults. Often GAPNs anticipate these conditions and provide early intervention. Models of care that have improved hospital care to the elderly include geriatric evaluation teams, Nurses Improving Care to the Hospitalized Elderly (NICHE), Geriatric Resource Nurse (GRN), Case Management (CM), Geriatric Evaluation and Management (GEM) units and Acute Care of the Elderly (ACE) units. GAPNs have been integral members of these models of care.

A retrospective analysis of nursing home patients admitted to an acute care facility demonstrated a mean decrease of 2.78 (p < 0.05) days in length of stay when care involved a GNP (Miller, S. K., 1997). Naylor and colleagues (1999) went further than evaluating “in-house” statistics. Their randomized clinical trial included 363 patients (186 control; 177 intervention) with follow-up data collection up to 24 weeks posthospital discharge. In the intervention group, GAPNs were responsible for comprehensive discharge planning and maintaining a home follow-up protocol. Examples of the outcome measures were hospital readmission, recurrence or exacerbation of the index hospitalization diagnostic-related groups (DRG), comorbidity, cumulative days of rehospitalization, functional status, depression, and patient satisfaction. The findings at 24 weeks posthospital discharge demonstrated that GAPN patients experienced fewer hospitalization days, yielding a Medicare savings of almost $600,000. Other findings: functional status, depression scores, and patient satisfaction, were similar in both study groups.

Case studies of older adults living at home describe the accessible, comprehensive, accountable, continual, and collaborative care delivered by GNP (Burns-Tisdal & Goff, 1989). Alessi and colleagues (1997) studied 414 home care clients (215-intervention and 199-control). The intervention group had GNP-performed geriatric assessments (CGAs) annually for 3 years, along with quarterly follow-up visits. The authors examined the GNP’s health care recommendations given to clients and proposed that repetitive reinforcement and the GNP-patient relationship contributed to achieving patient adherence to therapies. This warrants further investigation.

The Program of All-inclusive Care for the Elderly (PACE), developed in San Francisco known as On Lok in 1971, focuses on health and social day services to enable frail older adults to remain in the community. PACE’s model requires GAPNs in the interdisciplinary team. PACE programs now exist in nine states providing cost-effective quality care with a reduction in institutional care use (Eng, Pedulla, Eleazer, McCann, & Fox, 1997).

GAPNs provide effective ambulatory care. McDowell, Martin, Snustad, and Flynn (1986) performed a retrospective review of 800 patients comparing GNP's care to two internal medicine board-certified physicians with geriatric experience using polypharmacy and functional status as comparison measurements. GNP provided high-quality, cost-effective care. Another study (Mahoney, D. F., 1994) compared medication usage of NPs and MDs; three geriatric vignettes designed by GNP, geriatricians, and geriatric pharmacists were presented to 373 MDs and 118 NPs. Analysis of the MDs and NPs was discussed and it was discovered that NPs utilized fewer drugs. The NP sample was not specifically limited to GNP; family and adult nurse practitioners were included in the sample. Geriatric experience and prescribing experience proved to be significant factors affecting appropriate prescribing. Mahoney proposed that gerontological education for APNs and Family Nurse Practitioners (FNPs) would en-
Meta-analysis methods have allowed researchers to examine conflicts in the data and deduce clearer and more conclusive findings. Often lacking in the literature is a clear presentation of APN preparation and specialty. Future research needs to be rigorous with attention to (a) conceptual definitions—sensitivity of outcome measures, study of care delivery processes not solely on the provider, relationship between the process and outcomes of care; (b) measurement of variables; (c) APN educational backgrounds; and (d) methodology—more blind randomized trials with attention to internal and external validity (Brown, S. A., & Grimes, 1995).

**Grandparents Raising Grandchildren**

According to the 2000 Census Supplementary Survey, an estimated 6 million or 8.4% of children in the U.S. live with nonparental relatives, a 173% increase since 1970 and a 78% increase since 1990 (U.S. Bureau of the Census, 2001). Of the 6 million children living with nonparental relatives, 75% are being raised by grandparents. Although this phenomenon impacts all racial and economic groups, the most significant rises have been among African Americans and low-income families.

The most common antecedents to children being raised by grandparents—while often interrelated—include child abuse and neglect, substance abuse, mental illness, incarceration, homicide, and HIV/AIDS among parents (Dowdell, 1995; Kelley, Yorker, Whitley, & Sipe, 2001). While some children have been removed from the care of their birth parents by the child protection system and placed with foster parents, many more are with grandparents through informal arrangements among family members (Yroker et al., 1998).

While caregiver burden among those providing for elderly parents or spouses has been studied extensively over the past few decades, only recently has it been examined among older adults raising grandchildren and great-grandchildren. With the dramatic rise in the number of grandparents raising grandchildren in households that do not include either birth parent, research on this population has only recently evolved. Researchers studying this phenomenon represent a number of disciplines including nurses, sociologists, gerontologists, and psychologists. Nurse researchers have made important contributions to empirical knowledge related to the impact of the caregiving role on grandparents raising grandchildren.

Recent research indicates that raising grandchildren was associated with negative consequences for the well-being of grandparents. For instance, numerous studies indicate that grandparents raising grandchildren are at an increased risk for physical health problems, with some health problems serious enough to jeopardize their ability to provide care for their grandchildren (Dowdell, 1995; Whitley, White, Kelley, & Yorker, 1999). Based on a nationally representative sample, researchers found that grandmothers raising grandchildren were more likely than noncaring giving grandmothers to report their health as fair or very poor (Fuller-Thomson & Minkler, 2000). These grandmothers were also more likely to report physical limitations when performing daily living activities. Similarly, Dowdell found that 45% of the custodial grandmothers identified themselves as having a physical health problem or illness that seriously affected their general health, with single grandmothers more likely than married grandmothers to report health problems. In a prospective cohort study as part of the Nurses’ Health Study, researchers found that providing high levels of care to grandchildren increases the risk of coronary heart disease (Lee, S., Colditz, Berkman, & Kawachi, 2003).

In a study involving 102 custodial grandmothers, almost half self-reported their health as only fair or poor (Whitley et al.,...
Health assessments by registered nurses indicated that 25% of the participants were diabetic, 54% were hypertensive, and 80% met the criteria for obesity, which is associated with cardiovascular problems. Participants scored significantly worse in the areas of physical functioning, bodily pain, social functioning, role functioning, and general health than national norms on a standardized self-report measure of health.

Researchers consistently have found that assuming full-time parenting responsibilities for grandchildren was associated with increased rates of psychological distress, including depression, in grandparents (Burnette, 1998; Emick & Hayslip, 1999; Force, Botsford, Pisano, & Holbert, 2000; Fuller-Thomson, Minkler, & Driver, 1997; Kelley, Whitley, Sipe, & Yorker, 2000; Szinovacz, DeViney, & Atkinson, 1999). In a study of African-American women raising grandchildren, Minkler and Roe (1993) found that 37% of grandmothers raising grandchildren reported their psychological health had worsened since assuming full-time caregiving responsibilities, with the majority (72%) reporting feeling “depressed” in the week prior to data collection. In another study, researchers found that nearly 30% of grandparents raising grandchildren had psychological distress scores in the clinical range, which is indicative of a need for mental health intervention (Kelley, Whitley, et al.).

Grandparents raising children with special needs or behavioral problems experience even higher rates of psychological distress. In one study, researchers found that grandparents raising special-needs children reported poorer mental health well-being than those raising children without special needs (Brown, D. R., & Boyce-Mathis, 2000). Other studies have found that grandparents raising grandchildren viewed as difficult or as having behavioral problems experienced more negative affects than grandparents raising children viewed as normal (Hayslip, Emick, Henderson, & Elias, 2002; Pruchno & McKenney, 2002).

While many of the studies discussed above involve relatively small and homogeneous populations, researchers analyzing data from the National Survey of Families and Households reported similar findings. For instance, when researchers compared custodial grandparents to noncustodial grandparents, they found that custodial grandparents were almost twice as likely to be categorized as depressed (Fuller-Thomson et al., 1997). Even after controlling for depression that pre-existed the onset of caregiving, custodial grandmothers had higher rates of depression.

Minkler and Fuller-Thomson (2001) also found that custodial grandmothers were more likely than noncustodial grandmothers to have significant levels of depressive symptomatology.

A number of factors have been identified as contributors to increased psychological distress, including depression, in grandparent caregivers. Some of the most well-documented correlates included poor physical health, social isolation, and financial difficulties. For example, in one study, researchers found that family resources, participants’ physical health, and to a lesser extent social support predicted levels of psychological distress in grandparents raising grandchildren (Kelley et al., 2000). Other factors contributing to mental health status that have been identified by researchers include circumstances involved with the onset of assuming full-time parenting responsibilities (e.g., abandonment by, addiction in, incarceration or death of their adult child), changes in role demands, conflict with the children’s parents, behavior problems of grandchildren, and legal issues (Caliandro & Hughes, 1998; Dowdell, 1995; Emick & Hayslip, 1999; Yorker et al., 1998).

By assuming full-time parenting responsibilities, grandparents are often faced with increased financial pressures at or near a time in their lives when income is dramatically decreased. This decrease in income is most often related to retirement and living on fixed incomes or from having to leave full-time employment because of the demands of full-time parenting, especially when the grandchildren have special needs. While some families may be entitled to Temporary Assistance to Needy
Families (TANF) cash benefits, the monthly payments are typically nominal and insufficient for adequately housing, clothing, and feeding children. Furthermore, a lack of resources has been found to contribute to increased psychological stress in grandparents raising grandchildren (Kelley et al., 2000).

Findings from several studies portray grandparent caregivers as socially isolated from peers due to demands of raising children at a point in their lives when they would otherwise have few childcare responsibilities (Fuller-Thomson & Minkler, 2000; Hayslip, Shore, Henderson, & Lambert, 1998; Musil, 1998). The social isolation typically reported by grandparents raising grandchildren is important given that social support is a mediator of psychological distress in grandparents raising grandchildren (Kelley et al., 2000).

Further research on the well-being of custodial grandparents is needed. Longitudinal studies would contribute to knowledge of the long-term impact of this type of caregiving. Experimental studies will be necessary to determine which intervention strategies are most effective in improving the physical and mental health of this population. An increase in policy-relevant research is needed to address the health care, financial, and housing needs of grandparents raising grandchildren.

**Grantsmanship**

Grantsmanship is the knowledge and skill needed to prepare a grant application. It is the art behind the science. It cannot make bad science fundable, but poor grantsmanship can keep good science from receiving the favorable review needed for funding. Although good science is a necessary prerequisite for success in obtaining funding, good grant writing is what makes the good science shine. Indeed, many characterize good grantsmanship as a type of salesmanship.

Everything a grant writer does to make the grant reviewer’s job easier is part of good grantsmanship. The grant writer wants to impress the reviewer with the soundness, importance, and perhaps even the creativity of the science of the proposal. At the same time, the grant writer must stimulate an excitement that turns the reviewer into an advocate or enthusiastic champion of the proposed project.

Achieving a balance between generating such enthusiasm and sticking with a somewhat rigid formula in the actual writing is an artful enterprise. Grant writing itself is not particularly creative. Rather, grant writing can be viewed as a type of formula writing. Good basic writing skills are essential. The grant writer must methodically walk the reader or reviewer through a well-constructed logical argument. The reviewer should have no question about where the grant writer is going. Moreover, a good grant writer anticipates the reviewer’s questions and answers them before the question is raised.

Repetition of important content is a key aspect of good grant writing. An important point is worth repeating to ensure that a reviewer does not miss it. Repetition also is essential in the choice of words for key concepts. Once a concept is named and defined, the grant writer should stick with the identified word, term, or phrase. Altering a phrase or using alternative terms in order to provide some variety only serves to confuse a reviewer trying to follow the specific ideas presented.

Good grantsmanship also requires the ability to handle criticism. Many more grants are written and submitted than are actually funded. Therefore, a good grant writer will seek multiple reviews from colleagues before actually submitting a grant to the funding agency. It is wise to seek reviewers for a variety of purposes. Some should be familiar with the content area of the grant application to identify any important errors or gaps in content. Others should be unfamiliar with the specific content area to protect against assumed knowledge by insiders and to determine if the grant is written in a manner that convinces a knowledgeable but otherwise uninformed reviewer about the worthiness of the proposed project. Still others may be used
for things such as grammar, editing, and typographical errors not found by computer spell-checks. The ability to handle criticism is needed to request and receive a brutal review and to respond to all concerns and criticisms without defensiveness. It is far better to acknowledge the concern from a colleague and be able to revise the grant application accordingly than to have the very same concern raised in the official review and result in a poor evaluation and no funding.

Although the specific proposal is the heart of the grant, grantsmanship involves much more than just writing the actual proposal. Good grant writers understand other aspects as well. For example, a cardinal rule is to follow the directions. It seems simple enough, but it is surprising how many would-be grant writers neglect to read carefully all instructions for a particular grant application and to follow them faithfully.

Most grant applications come with specific guidelines about such things as eligibility to apply, budget limits, allowable costs, page limits, margins, font sizes, section sequencing, the type of content expected, the number of references allowed, what may go into appendices (if allowed), who must sign where and what, and so on. It is imperative that the grant writer adhere to all the identified specifications. Some funding agencies will return grants unreviewed if the directions are not followed. Not following directions raises questions about the careful attention to detail needed to carry out most projects and thus may reflect poorly on the applicant.

Another basic element of good grantsmanship is to know and understand the goals and mission of the particular funding agency to which one plans to submit the grant. For example, each institute in the National Institutes of Health (NIH) has a specific mandate to fund certain types of research. Further, each institute generally sets priorities identifying specific areas in which they are seeking proposals. Prior to writing a grant, one should investigate and determine what funding agency would be the best match for the intended project.

The grant writer should specifically address the stated priorities and goals of the funding agency or foundation for support of the proposed project. This is particularly true for foundation grants. A helpful strategy when making these arguments is to use the exact language of the program announcement or the foundation’s mission statement. It is rarely in the grant writer’s best interest to try to convince a foundation or other funding entity of a worthwhile project not clearly within its mandate.

There are a number of references to assist a grant writer. One particularly useful book is the *Grant Application Writer’s Handbook* by Liane Reif-Lehrer (1995). In addition to general information about writing and applying for grants, it contains extensive information about the grant programs of the NIH. Over half of the volume is devoted to appendices, with useful resources, references, and information about the NIH, the National Science Foundation, and applying to foundations. Although some of the specific information rapidly becomes dated, much remains valuable and timeless. The NIH also publishes a volume titled *Helpful Hints on Preparing a Research Grant Application to the National Institutes of Health* that contains several useful and informative articles and presentations. It is available free of charge from the NIH website, http://www.nih.gov.

LAUREN S. AARONSON

Grief

Grief is a multifaceted response to the loss of a significant person, object, belief, relationship, body part, or body function. Grief includes the entire range of physical, psychological, cognitive, and behavioral responses to loss. Grief is characterized by intense mental anguish and varies in duration from a few weeks to many years. Three types of grief have been identified: conventional grief, anticipatory grief, and pathological grief. Conventional grief occurs after a loss, while anticipatory grief is the response to an impending
loss. Although there is little agreement on the exact nature of anticipatory grief, there is
general agreement that anticipatory grief fa-
cilitates coping with a loss when the loss actu-
ally occurs. Grief that falls outside normal
parameters is often labeled pathological grief; however, there are no specific signs or symp-
toms that differentiate conventional grief
from pathological grief.

Loss, bereavement, and mourning are
terms related to grief. Loss is the experience
of parting with an object, person, belief, or
relationship that is valued, wherein the loss
necessitates a reorganization of one or more
aspects of the person’s life. Losses range from
minor ones, such as the loss of a wallet which
necessitates only minor adjustments, to major
ones, such as the death of a loved one or the
loss of one’s home in a fire or flood which
necessitates major adjustments. Bereavement
is the state of having experienced a loss, par-
ticularly the death of a significant other.
Mourning encompasses the socially pre-
scribed behaviors after the death of a signifi-
cant other. Such behaviors vary from culture
to culture. Mourning behaviors are conven-
tional outward signs of grief that are socially
constructed and do not necessarily indicate
the presence or absence of grief.

Throughout time, nurses have had key
roles managing grief. Whether working in the
emergency room, a critical care unit, labor
and delivery, a psychiatric setting, or any
other setting, nurses frequently deal with in-
dividuals and families who are experiencing
either anticipatory grief or grief following a
loss. Despite the importance of nurses in car-
ing for the grieving, little nursing research
was conducted on grief until the late 1980s.

In 1983, Jeanne Quint Bonoliel reviewed
nursing research on death, dying, and termi-
nal illness at a time when few nurses were
conducting research in those areas. Since
then, research on grief and bereavement has
proliferated. In 1987 Demi and Miles pub-
lished a review of research on bereavement.
Opie, in 1992, published a review on child-
hood and adolescent bereavement. In 1995
Martinson reviewed research on pediatric
hospice care and addressed both anticipatory
grief and grief after the death of a pediatric
hospice patient. Corless, in 1994, critiqued
research on symptom control within hospice
care and reviewed research on coping with
dying. A number of nurses developed re-
search programs focused on grief, including
J. Q. Benoliel, R. Constantino, A. Demi, M.
Diamond, N. Hogan, M. Miles, S. Murphy,
J. Saunders, and M. Vachon. Hogan and
Schmidt (2002) recently developed a model
of grief to personal growth through structural
equation modeling.

Standardized instruments such as the
Texas Inventory of Grief, the Grief Experi-
ence Inventory, and the Bereavement Experi-
ence Questionnaire have been used to assess
grief manifestations. The emotional distress
that accompanies grief was often measured
with instruments such as the Brief Symptom
Inventory, the Profile of Mood States, the
Impact of Events Questionnaire, or a depres-
sion scale such as the Beck’s or Hamilton’s.
Children’s and adolescents’ grief was often
measured by the Child Behavior Checklist.
A recent addition is the Hogan Grief Reaction
Checklist (Hogan, Greenfield, & Schmidt,
2001).

Much nursing research on bereavement
has been directed at describing the manifesta-
tions of grief among diverse samples: be-
reaved parents, children, siblings, and wid-
ows; suicide survivors; and people facing a
life-threatening or terminal illness. Other re-
searchers have described bereaved persons’
responses to events such as the loss of a home
by fire (Keane, Brennan, & Pickett, 2000)
or a spontaneous abortion (Van & Meleis,
2003). Still other researchers have focused on
describing nurses’ responses to caring for the
dying or the bereaved. These descriptive stud-
ies have used diverse analytical approaches,
such as grounded theory and phenomenol-
gy, and diverse data collection methods in-
cluding participant observation, semistru-
tured interviews, survey questionnaires,
structured instruments, and q-sort tech-
niques.

Some nursing research on bereavement has
focused on comparing different modes of be-
reavement (suicide vs. accident, expected vs.
Grounded Theory refers to a method of qualitative research which seeks to explain variations in social interactional and social structural problems and processes. The goal is to generate theory from the data and resultant conceptual schema. The grounded theory approach preserves the possibility of discovering fundamental patterns in all of social life, called core variables or basic social processes (Hutchinson, 1993; Wilson, H., 1993). According to its sociologist originators, Barney Glaser and Anselm Strauss (1967), grounded theories should be relevant and work to explain, predict, and be modified by social phenomena under study. Data are not forced to fit existing theories but rather are used to develop rich, dense, complex analytic frameworks.

Grounded theory as an original mode of inquiry oriented to the discovery of meaning emerged from the social philosophy of symbolic interactionism and an intellectual tradition in social science called pragmatism. Both emphasize (a) the importance of qualitative fieldwork in data collection in order to ground theory in reality, (b) the nature of experience as a process of continuous change, and (c) the interrelationships among conditions, interpretive meaning, and action. Knowledge is viewed as relative to particular contextual circumstances. Such a worldview was in contrast to the dominant paradigm that emphasized stability and regularities in social life.
Grounded theory, as a qualitative, non-mathematical analytic process is particularly well suited to nursing studies that are conducted to uncover the nature of clinically relevant phenomena such as chronic illness, caregiving, and dying in real-world rather than laboratory conditions. The resulting theoretical formulation not only explains human experience and associated meanings but also can provide a basis for nursing intervention research and nursing practice.

The influence of grounded theory methods has been particularly striking in the evolution of nursing research because Glaser and Strauss, who developed the method, were professors in the School of Nursing at the University of California, San Francisco, starting in the 1960s. Consequently, many of the seminal methodological references and landmark publications of findings in the nursing literature can be traced to nursing doctoral students who studied and collaborated with them in the 1970s and 1980s. Subsequently, those early colleagues mentored cohorts of other nurse researchers. Several nurse researchers, including Jeanne Benoliel, Juliet Corbin, Sally Hutchinson, and Holly Wilson, have been leaders in the application, articulation, and dissemination of the use of grounded theory methods by nursing and other disciplines.

Grounded theories are focused on what may be unarticulated social-psychological and social-structural problems and are integrated around the basic social process that is discovered in observational, interview, and document data (Wilson, H. S., & Hutchinson, 1996). The researcher does not begin with a preconceived theory and experimentally prove it. Rather, the researcher begins by studying an area under natural conditions. Data are usually derived from qualitative data sources—interviews, participant observation (fieldwork), and document analysis—although quantitative data can also inform the emerging analysis. Sensitizing questions are asked to learn what is relevant in the situation under study. Sampling is not conducted according to conventions of probability, nor is sample size predetermined. Instead, purposive, theoretical sampling is used so that concepts emerging from the data guide additional data collection.

Doing grounded theory research departs from the typically linear sequence of theory verifying research because data collection and analysis go on simultaneously. As soon as data are available, an orderly, rigorous, constant comparative method of data analysis is initiated. Analysis proceeds through stages of in vivo (or substantive) coding in which themes and patterns are identified in the words of participants themselves, coding for categories in which in vivo codes are clustered together in conceptual categories, and theoretical coding in which relationships among concepts are developed. Memos are written detailing each of the codes and categories and linking them to exemplars from the data. Concepts and propositions that emerge from the data direct subsequent data collection.

The sample is considered complete when saturation is achieved. Saturation refers to the point at which no new themes, patterns, or concepts appear in the data. Sorting memos (conceptual notes about codes and categories and their data exemplars) into an integrative schema provides an outline for integrating and then reporting the grounded theory discovered.

The outcome of analysis is a dense, parsimonious, integrative schema that explains most of the variation in a social psychological situation. Properties, dimensions, categories, strategies, and phases of the theory are inextricably related to the basic social process. Grounded theory may be context-bound to a specific substantive area (substantive theory) or may be at a more conceptual level and applicable to diverse settings and experiences (formal theory) (Glaser, B., 1978).

The grounded theory approach has resonated with a wide variety of social scientists and professional practitioners interested in human experiences with health and illness. In their book, *Discovery of Grounded Theory*, B. Glaser and Strauss (1967) acknowledged that it was a “beginning venture” and did not offer “clearcut procedures and definitions” (p. 1). Over time, grounded theory, as
an approach to the generation of theory from data has undergone some major transformations. Some of the changes that were designed to promote rigor in the method have been criticized as diverting the research from generating theory directly from data, for risking theoretical sensitivity in the investigator, and for eroding the method. Others are of the opinion that assuming that grounded theory was taught and conducted from a single unified perspective is erroneous and that the ongoing discourse among qualitative researchers is part of an intellectual movement essential to grounded theory’s refinement and evolution. The hallmarks, however, continue to be data-theory interplay, making constant comparisons, asking theoretically oriented questions, conceptual and theoretical coding, and the development of theory.

HOLLY SKODOL WILSON  
SALLY A. HUTCHINSON  
UPDATED BY DEBORAH F. LINDELL
Health Care Communication

Health care communication remains at the core of nursing practice providing the groundwork for relationships with patients, family members, and health care colleagues; and the medium for teaching and caring. Verbal communication includes “all behavior conveying messages with language” (Caris-Verhallen, Kerkstra, & Bensing, 1997, p. 916). Nonverbal communication includes any behavior that imparts information without the use of verbal language, including body movement, physical appearance, conversation timing, voice qualities, personal space, and touch (Oliver, S., & Redfern, 1991). Sustained programs of research in health care communication remain scarce. S. Brown's (1999) review of the research literature on patient-centered communication in the Annual Review of Nursing Research contained only 15 nursing journal references out of 69 references. The majority of health care communication research has been conducted in psychology and medicine. The following review highlights contributions that nursing research has made to health care communication.

The development of expertise in communication has been examined in the clinical setting and with educational interventions. Kotechi (2002) conducted a grounded theory study of baccalaureate nursing student communication and found that the students moved through a four-stage process to develop a “personal communication repertoire” (p. 63). Stage one, affirming the self, involved self-talk to bolster confidence in communicating with patients and to evaluate their own communication. Stage two, engaging the patient, moved beyond feeling like an intruder to establishing acceptable boundaries, and developing a relationship and rapport with patients. To engage the patient, students used social talk (superficial conversation), professional talk (communication strategies learned in school), and personal talk (communication used on special occasions to share a common experience). During stage three, students experienced communication breakdowns when they worked with more challenging patients, but learned to keep going by using additional communication strategies. Students relied heavily on how the staff nurses talked with more challenging patients and incorporated the helpful communication strategies into their repertoire. During stage four, refining the repertoire, students became more facile in selecting or switching to more effective communication strategies, and did so with greater confidence in order to persevere through more challenging patient-care situations.

The majority of nursing research in health care communication has focused on describing how nurses communicate with patients across a variety of clinical contexts. In some studies communication has been conceptualized as either affective (providing social or emotional support) or instrumental (completing a necessary task). Caris-Verhallen and colleagues (1997) examined nurses’ communication with older adults in both the community and extended care setting. Nurses, nursing assistants, and older adults were videotaped and Roter’s Interactional Analysis sys-
tem was used to score the interactions. A total of 44% to 72% of the communication was socioemotional. Most of the older adults had received care for a year or more, which may have facilitated the increased interpersonal nature of the communication (Caris-Verhallen, Kerkstra, van der Heijden, & Bensing, 1998).

A different pattern of verbal communication was found in an experiment in which nurses were videotaped admitting a simulated cancer patient. A total of 62% of the verbal communication was instrumental. Few of the verbalizations encouraged patient input such as asking if patients understood (Kruijver, Kerkstra, Bensing, & van de Weil, 2001). The simulated conditions of the study might have decreased the usual efforts that nurses make to provide emotional support and involve patients during admission interviews. Home care nurses initiated talk about compliance with the medical regimen, an instrumental focus, approximately 60% of the time (Vivian & Wilcox, 2000), suggesting that an instrumental focus might predominate in nursing communication with patients. Studies testing the effects of socioemotional/instrumental communication and patient involvement on patient outcomes might guide the use of more effective communication strategies.

The context for the communication has generally not been directly examined, with the exception of Caris-Verhallen et al. (1998). Studies that have examined nurse and patient communication across different populations and settings provided some insight into the effect of context. For example, while nurses initiated most of the child-health topics with parents during a well-child visit, nurses invited questions from parents in 66% of the visits (Baggens, 2001), a finding contrary to Kruijver and colleagues (2001). It would be helpful to more closely examine the impact of context in future communication studies.

Therapeutic use of communication provides a helpful area for nursing research and shifts the focus to the patient and health care provider interaction. Nurses and patients were found to encourage optimism in a constructive, realistic manner during cancer-care communication. Nurses and patients developed positive statements by elaborating on more positive points. Conversations were generally ended on a positive note, often with the patient spontaneously providing the comment (Jarrett & Payne, 2000). Listening in order to understand what has been said is an essential part of therapeutic communication. Listening involves focusing on the patient, and providing patients the opportunity to talk and find their own interpretation of their experience (Fredriksson, 1999). Research is needed to translate descriptive findings about therapeutic communication into effective interventions.

Supporting patients to communicate effectively has reemerged as a nursing research focus, moving beyond testing the effects of communication boards. Augmentative and alternative communication (AAC) devices improve or supplement talking and writing, and include devices such as computer-generated speech. Uncovering the meaning of using AAC devices might encourage nurses to value and support use of such devices. Patients’ experience of using AAC devices to communicate was found to enable humanness. Use of AAC devices helped communicate thoughts but was less effective in communicating emotion (Dickerson, Stone, Panchura, & Usiak, 2002). A less technical means of supporting patient communication was tested by teaching pain-communication skills via videotape to older adults awaiting surgery. Older adults who were taught the communication skills reported greater pain relief on the 1st day after the operation (McDonald, D., & Molony, in press). The study did not directly measure patient communication and did not clarify which specific communication strategies or combinations were most helpful.

Nursing research in health care communication continues to be widely dispersed. Approaches that microanalyze segments of conversation provide some description of the content of the communication, but they do not capture the context, motivations, or consequences. Naturalistic studies (e.g., Jarrett & Payne, 2000; Kotechi, 2002) have provided some helpful insights, suggesting the
need to further explore aspects of health care communication from the naturalistic approach, for example, conducting a grounded theory study to identify the basic process by which expert nurses effectively communicate with patients. The majority of the research has focused on how nurses communicate with patients. Future research must include patient contributions to the communication, testing ways to support patients to effectively communicate with health care providers. Ways of enhancing patient communication must be linked to positive patient outcomes such as increased self-care and decreased pain, and must be obtainable within the constraints of current health care systems.

DEBORAH DILLON MCDONALD

Health Conceptualization

The concept of health is a critical concept for nursing as it informs the profession’s goals, scope, and outcomes of practice. The goals of nursing are to restore, maintain, and promote health; the scope of nursing’s concern is with problems of health. When nursing practice assists people back to a healthy condition, successful outcomes are correctly declared. To be effective, nurses must have an understanding of health.

Health has been conceptualized in many ways in our society, including physical, emotional, mental, spiritual, and social well-being; what people in a culture value or desire; maximization of potential; high-level wellness; fulfillment of personal goals; successful performance of social roles; successful interaction with the environment; and proper functioning. Health has also been viewed as subjective or relative (self-report), objective (measured against an agreed-upon standard), comparative (a more-or-less condition viewed as a continuum or gradation), classificatory (a dichotomy), holistic (indivisible), a state (condition), and a process (continuous change over time). Thus, with such multiple, sometimes overlapping, sometimes redundant, sometimes contradictory conceptions of health, the term has to be understood in terms of the purposes to which it is being applied.

What is the meaning of health for nursing science, that is, for human responses to actual and potential health problems? The concept of health has been dominated by two broad approaches: (a) descriptive analysis, and (b) visioning the goals and practice of nursing for the future. In this context, the intention of the descriptive analysis is to understand the aims, goals, and criteria of success in current nursing practice. Investigators are trying to understand, systematize, and render coherent what nurses understand themselves to be doing and to clarify the different forms that disease or failures of health can take. Assessing the results of this approach amounts to determining which conception makes better sense of nursing practice and how the different parts of nursing practice fit together.

To most nursing clinicians and researchers, regardless of specialty area, the conception of health most applicable to practice is health as the absence of signs and symptoms of physiological malady and disability. Most nurses spend their careers observing, administering, modifying therapies, interpreting conditions, and treating people who are sick and need to be restored to health or teaching them how to stay free of those signs and symptoms. There are many theories that illustrate this approach. These include Nightingale’s conceptualization of health as an innate process that could be influenced by education, lifestyle changes, and improvement of environment (Nightingale, 1885). Smith’s (née Baigis) clinical, role-performance, and adaptive models of health (Smith, J. A., 1981) also illustrates this approach as do the conceptual models, including the self-care framework (Orem, 2001). Orem identified health as the state of being whole and sound, where sound means strength and absence of disease, and whole means nothing is missing. She conceptualized health as an outcome of self-care and as an influencing factor on both self-care agency and self-care demand. Finally, theories focused on stability, balance, and ad-
aptation (e.g., Johnson, 1990; Roy & Andrews, 1999) also illustrates this approach clearly. D. E. Johnson (1961) identified health as a constantly moving equilibrium during the health change process whereas Roy’s model of health emphasizes well-being rather than illness.

The second approach visions the goals and practice of nursing for the future. What currently passes for nursing is fundamentally inadequate; only by articulating a proper conception of health can we clearly explain what nurses should be doing. Assessing the results of this approach is much more difficult and controversial. In part, this is because some of the particular proposals reflect specific theories of human nature or philosophical orientations, like existential phenomenology, that have assessments that are a matter of dispute. In addition, these nondescriptive approaches disagree not only in their proposals for what nursing should be but also in what they identify as fundamentally wrong with current nursing practice.

Holistic theories of health are one type illustrating this second approach. Some of these are based on M. E. Rogers’ (1990) science of unitary human beings. They are attempts to operationalize what Rogers meant by health as a state of continuous human evolution to ever higher levels. Examples are health as a process of becoming as experienced and described by the person (Pase, 1992), and as the totality of the life process, which is evolving toward expanded consciousness (Newman, 1990a). In Fitzpatrick’s life-perspective rhythm model, health is identified as a basic human dimension in continuous development (Pressler & Montgomery, 2005).

The concept of health as self-actualization is another type illustrating this approach, as in Smith’s (née Baigis) eudaimonistic model (Smith, J. A., 1981) and Pender’s (1996) definition of health in her health-promotion behavior model.

How are these theories applicable to practice? Within the context of these theories of health, there can be something wrong with a person even though the standard clinical concepts are not at issue. There are cases in the second approach where success in practice has not been achieved, yet success in practice implicitly determines what health is. If someone does not have any signs and symptoms of malady or disability and is still not actualized, the nurse has not done her job. Does this make the nurse’s job unbounded? Is the nurse being set up for burnout? Does nursing practically and theoretically want to claim that its domain covers all of the actual and potential health problems inherent in all of these meanings of health? The profession must be clear about what a health problem is so that it can determine who has the problem and who does not.

Nursing is not the only profession analyzing the idea of health. Much work is also being done in the philosophy of medicine, public health, and public policy. For example, some theories of health care allocation rest on specific conceptions of health and disease—why there might be a right to adequate health care but not necessarily a right to convenient transportation (e.g., having a car) gets explained in terms of the details of what is health and why it is important. Nursing researchers should try to integrate these concerns into current theories or at least explore common themes in this work.

JUDITH A. BAIGIS
UPDATED BY MARY T. QUINN GRIFFIN

Health Disparities

The term health disparity has been widely used to refer to both inequalities, or differences, and also inequities, differences that imply unfairness or injustices. Health disparities have been discussed in relation to health care access and quality, health status, burden of disease, and excess deaths (Carter-Pokras & Baquet, 2002). Health disparities in the United States have been associated with age, gender, income, educational level, sexual orientation, disability, geographic location, and racial and ethnic minority status. Recognizing these categories are not mutually exclu-
sive, the focus on this section will be on health disparities of racial and ethnic minority groups.

In the 1980s, the U.S. Department of Health and Human Services (DHHS) created the Task Force on Black and Minority Health. It was convened “in response to a national paradox of phenomenal scientific achievement and steady improvement in overall health status, while at the same time, persistent, significant health inequities exist for minority Americans” (U.S. DHHS, 1985, p. 2). The Task Force examined mortality data between minority groups and nonminority groups to determine excess deaths. Six causes of death accounted for more than 80% of the mortality among minority populations. The causes of excess deaths in minority populations included cancer, cardiovascular disease and stroke, cirrhosis (attributed to chemical dependency), diabetes, homicide and unintentional injuries, and infant mortality.

Since that time, there have been numerous national policy initiatives to address health disparities. Healthy People 2000, for example, called for a reduction in health disparities, while Healthy People 2010 set as a national priority the elimination of health disparities among racial and ethnic groups. President Clinton in 1998 focused attention on six health disparities confronted by racial and ethnic minority groups, which were remarkably similar to those identified in 1985. These areas included cardiovascular disease, diabetes, cancer, HIV/AIDS, infant mortality, and pneumonia and influenza. Finally, the creation of the National Center for Minority Health and Health Disparities within the National Institutes of Health helps to focus research priorities and resources towards eliminating health disparities.

While there is no denying that health disparities exist for racial and ethnic minorities, the cause of disparities and therefore the design of appropriate strategies and interventions to eliminate disparities is the subject of many debates. Causes of disparities range from individual influences, including genetic predisposition and behavioral choices, to broader social determinants including living in hazardous environments, limited opportunities for education, and finally barriers to health care including limited access, cultural and linguistic barriers, and institutional racism in health care and other settings.

Nursing groups have provided direction for research needed to address racial and ethnic disparities in health. For example, the National Coalition of Ethnic Minority Nursing Associations (NCEMNA) partnered with the National Institute of Nursing Research (NINR) to develop recommendations for a nursing research agenda for minority health. Basic research, epidemiological, clinical, and community studies, as well as health services research were identified as being needed to address the top 10 causes of death for each ethnic minority group. Specific research areas identified in the areas of health promotion and illness management included the need for descriptive research to identify health-promotion and disease-management behaviors, the development of culturally and linguistically appropriate instruments and interventions, consideration of spiritual dimensions, and the integration of mental health with illness management. In considering health disparities, NCEMNA called for an accounting of social justice and parity. Further, there was emphasis on focusing on positive aspects of racial and ethnic minority populations such as resilience, cultural strengths, and family and community supports. The need to identify vulnerable points across the life span also was identified.

The challenge for nurses in addressing racial and ethnic disparities in health and health care are many. First, there is an insufficient breadth and depth of nursing research with racial and ethnic minority populations that is adequate to guide practice. Certainly the lack of research in this area is not unique to nursing. As Zambrana (2001) pointed out, there is a tendency to attribute culture and language as influences on health outcomes because they are easier to talk about rather than the more powerful influences of socioeconomic status, literacy, poverty, and inequity.
The lack of an adequate science base to direct nursing practice with racial and ethnic minority populations is a critical barrier in guiding the delivery of culturally competent care. Both are also compounded by the limited racial and ethnic diversity within nursing.

It is critical that nurses increase their leadership in eliminating health disparities among racial and ethnic minorities as well as other segments of the population. In order to do this, we need to consider the role that nurses play in contributing to these disparities. Recognizing the influence of social determinants on health and health care, acknowledging and working toward the elimination of institutional racism and discrimination in health care settings and schools, increasing the racial and ethnic diversity within the nursing workforce, and the need for true partnerships with racial and ethnic minority communities are several of the needed strategies that nursing must take.

ANTONIA M. VILLARRUEL

Health Indicators

Health indicators are defined as the means by which one can describe either quantitatively or qualitatively an individual’s state of health or those factors that influence the health of a health system, population, or community (Atlas of Canada, 2001). Health indicators are “constructs of public health surveillance that define a measure of health (i.e., health status or other risk factor) among a specified population” (Lengerich, 1999).

In 1870, Farr, founder of modern concepts of surveillance, depicted statistics by developing graphic displays that took into account age at death (Lengerich, 1999). In so doing, Farr initiated a focus on health descriptions and analyses based on mortality and survival measures. In 1979, the U.S. Surgeon General’s Report established measurable improvement targets to be achieved by 1990 for individuals at each of the five major life stages (U.S. Department of Health and Human Services [HHS], 1998). Instead of being called health indicators, they were referred to as goals. Subsequent publications (Healthy People 2000 & Healthy People 2010) were more comprehensive in terms of objectives and in priority areas for research and improving health. Each of these documents can be used to draw attention to benchmarks related to the health of the nation. Today, the challenge that HHS has to address is the identification of the indicators that are not only priorities, but also are reasonable in number. Additionally, more extensive work was directed to listing of leading indicators and extending the reach of HHS beyond the health community to opinion leaders, the public, and nonhealth professionals (U.S. Department of Health and Human Services).

In 1998, the Canadian Institute for Health Information (CIHI) and Statistics Canada were instrumental in launching a collaborative effort in order to ultimately share the resulting health indicators report with Canadians from province to province. More than 500 health-related individuals (providers and consumers) met to identify health information needs. A priority for this group was to establish a list of health indicators for health and health services that could be used as comparable data (Statistics Canada, 2004). The list of indicators was relevant to Canadian health goals, based on standard or comparable definitions and methods, and available electronically throughout Canada. As in the United States, Canada has as a primary goal of the Health Indicators project “to support health regions in monitoring progress in improving and maintaining the health of the population and the functioning of the health system for which they are responsible . . . ” (Statistics Canada).

Key aspects of health indicators are that they are measurable, credible, and valid, based on data that are relatively easy and economical to collect, easily understood, and capable of providing information either for communities that are geographically defined or for populations or subpopulations that are well-defined (Atlas of Canada, 2001). Ten items were listed by Healthy People 2010 as leading health indicators. Leading health
Several models have been set forth to reflect different but overlapping approaches to the development of health indicators. They include the Mortality Model, Health Status Model, Disparities Model, Leading Contributors Model, Focus Area Model, Summary Measures Model, Social Indicators Model, Environmental Model, Report Card Model, Index Model, Single Parameter Model, Sentinel Model, Prevention Model, Human Development (or Life Stage) Model, and Change Theory Model. Of these models, the ones that help advance the initiative of Healthy People 2010 focus on areas that need more attention (lifestyle, disparities in health, social and environmental factors that influence health) (Office of Disease Prevention and Health Promotion, 2002).

Data gathered related to the health indicators provide a basis for comparison of health status locally, regionally, and nationally. Changes in the health status should be readily available and appropriate interventions can be initiated accordingly. Naturally, care must be taken to ensure that data that are compiled can be verified. With verified data, responsible decisions can be made in terms of health policy, health care delivery, health system management, and public awareness of health concerns.

The overarching goals for Healthy People 2010 are to increase the quality and years of healthy life and to eliminate health disparities (Office of Disease Prevention and Health Promotion, 2002). Interdisciplinary or multidisciplinary collaboration can lead to comprehensive plans to ensure that any deficits in health status are addressed in a timely manner. Data gathered may support current health care efforts or identify areas for improvement at home, in communities, at worksites, businesses, or beyond.

In summary, health indicators serve as measures for spatial and/or temporal comparisons, help health care professionals assess health conditions, provide empirical evidence that could be used to support health programs and policies, clarify starting and endpoints for interventions, and identify extent of gaps in population or community health.

The Canadian Health Indicators project resulted in the identification of the following: health status (well-being, health conditions, human function, and deaths); nonmedical determinants of health (health behaviors, living and working conditions, personal resources, and environmental factors); health system performance (acceptability, accessibility, appropriateness, competence, continuity, effectiveness, efficiency, and safety); and community and health system characteristics (community, health system, and resources) (Statistics Canada, 2004).

Health status indicators include mortality indicators (deaths and types of deaths), infectious disease indicators, maternal and infant health indicators, and community health status indicators (risk factors, access to care, preventive services use, death rates, birth measures, summary measures of health, leading causes of death, vulnerable populations, and environmental health). Other indicators are the health determinants and health outcome indicators (physical environment, poverty, high school graduation, tobacco use, weight, physical activity, health insurance, early detection of cancer, preventable deaths from injury, and disability), life course determinants (tobacco use, health care access, low birth weight, physical activity, poverty, cognitive development, substance abuse, violence, and disability), and prevention-oriented indicators (disability, preventable deaths from injury, poverty, tobacco use, childhood immunizations, cancer screening, hypertension screening, diabetes management, and health care access) (Public Health Foundation, 1999).

Indicators represent the important determinants of health for the full range of issues in the 28 focus areas of Healthy People 2010 (Office of Disease Prevention and Health Promotion, 2002). These indicators are: physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care (Office of Disease Prevention and Health Promotion).

Data gathered related to the health indicators provide a basis for comparison of health status locally, regionally, and nationally. Changes in the health status should be readily available and appropriate interventions can be initiated accordingly. Naturally, care must be taken to ensure that data that are compiled can be verified. With verified data, responsible decisions can be made in terms of health policy, health care delivery, health system management, and public awareness of health concerns.

The overarching goals for Healthy People 2010 are to increase the quality and years of healthy life and to eliminate health disparities (Office of Disease Prevention and Health Promotion, 2002). Interdisciplinary or multidisciplinary collaboration can lead to comprehensive plans to ensure that any deficits in health status are addressed in a timely manner. Data gathered may support current health care efforts or identify areas for improvement at home, in communities, at worksites, businesses, or beyond.

In summary, health indicators serve as measures for spatial and/or temporal comparisons, help health care professionals assess health conditions, provide empirical evidence that could be used to support health programs and policies, clarify starting and endpoints for interventions, and identify extent of gaps in population or community health.

Several models have been set forth to reflect different but overlapping approaches to the development of health indicators. They include the Mortality Model, Health Status Model, Disparities Model, Leading Contributors Model, Focus Area Model, Summary Measures Model, Social Indicators Model, Environmental Model, Report Card Model, Index Model, Single Parameter Model, Sentinel Model, Prevention Model, Human Development (or Life Stage) Model, and Change Theory Model. Of these models, the ones that help advance the initiative of Healthy People 2010 focus on areas that need more attention (lifestyle, disparities in health, social and environmental factors that influence health) (Office of Disease Prevention and Health Promotion, 2002).

Data gathered related to the health indicators provide a basis for comparison of health status locally, regionally, and nationally. Changes in the health status should be readily available and appropriate interventions can be initiated accordingly. Naturally, care must be taken to ensure that data that are compiled can be verified. With verified data, responsible decisions can be made in terms of health policy, health care delivery, health system management, and public awareness of health concerns.

The overarching goals for Healthy People 2010 are to increase the quality and years of healthy life and to eliminate health disparities (Office of Disease Prevention and Health Promotion, 2002). Interdisciplinary or multidisciplinary collaboration can lead to comprehensive plans to ensure that any deficits in health status are addressed in a timely manner. Data gathered may support current health care efforts or identify areas for improvement at home, in communities, at worksites, businesses, or beyond.

In summary, health indicators serve as measures for spatial and/or temporal comparisons, help health care professionals assess health conditions, provide empirical evidence that could be used to support health programs and policies, clarify starting and endpoints for interventions, and identify extent of gaps in population or community health.
Health indicators are useful in charting progress, forecasting trends, and directing programmatic attention and resources to areas that require attention (Office of Disease Prevention and Health Promotion, 2002).

Access to quality health services is a major concern, especially for those who are uninsured or underinsured. Health promotion and disease prevention are important foci that relate directly to health indicators. Ensuring appropriate care for individuals who are diagnosed with chronic disease or who have a predisposition to chronic disease is imperative. Health care education directed to diverse individuals requires heightened awareness of potential barriers in communication. Also, cultural sensitivity issues must be addressed in order to develop strategies that will overcome such barriers.

Research areas are many and varied from health care delivery issues to health policy to health awareness. Identifying the most significant health indicators and asking researchable and meaningful questions is essential if health care providers wish to support the goals and objectives set forth by Healthy People 2010. Clearly, priorities that need attention include those that could be improved by changes in lifestyle such as smoking and obesity. Education and intervention research are major activities that could result in improved outcomes. Nurses and other health care providers need to keep these health indicators in mind and seek to incorporate a variety of sources when integrating and applying interventions that will potentially improve individual, population, or community health and well-being.

KAREN L. ELBERSON

Health Policy

Health policy is what governments or private institutions choose to do, or not to do, in regard to health. If a choice is made to take action, a formal plan for a course of action is adopted—this is the realm of health policy. Health policy in the public governmental sector mainly focuses on legislative proposals, policy implementation (writing and publishing regulations), and judicial review of policy decisions. In the private sector, policy decisions are made that lay out operational principles to guide action and behavior within an institution. Achieving understanding of current health issues and finding suitable solutions to policy problems have fueled a distinct field of policy research that includes two subfields, that of health services research and that of policy analysis.

Health services research examines how people get access to health care, how much care costs, and what happens to patients as a result of this care. Today’s issues drive the investigations. For example, how will the nation identify and address the most effective ways to organize, manage, finance, and deliver high-quality care for all, and at the same time, reduce medical errors and improve patient safety?

Policy analysis uses a comparative methodology that examines how current policy proposals compare favorably or unfavorably with selected criteria. Criteria are drawn from previous research and a thorough review of the literature on the policy issue. Legislative proposals, in particular, lend themselves to this type of analysis.

The need for policy research has grown in importance as the nation confronts the rising costs and inadequacies of present day health care. It has been demonstrated that health policy research can assist in a number of areas, including: the elimination of health disparities; the closure of the gap between the “haves” and “have-nots” in health care; the protection of communities from avoidable health hazards; and the shift from a purely biomedical model, that accorded priority to science and services to treat the diseases of the individual, to one that focuses on population health and the many determinants of health and disease (Boufford & Lee, 2001, p. 1).

As governments and the private sector explore suitable policy solutions to the nation’s health care woes, the call for credible health policy is greater than ever. In the past, both
health services research and health policy analysis have been concerned with issues, such as access, quality, and cost of health care, with more emphasis on cost than access and quality. Today, there are perceptible changes, principally because consumers of health care are increasingly more vocal and more prominent players. Health care consumers are assisting in moving the health care industry toward increased accountability through evidence-based practice and the elimination of medical errors.

As health care problems increase in complexity, it has become obvious that no one health professional can address all of the issues and find all of the appropriate solutions. Within this context, research efforts have become increasingly grounded in the multidisciplinary investigations of complex policy problems.

As the largest group of health care professionals, nurses are in an ideal position to collaborate with and lead health policy researchers in the exploration of significant areas of concern. To do this, nursing must develop a new dialogue with other health professions and all those who participate in health policy decision making by developing greater flexibility and enhanced collaborative behaviors (Dickenson-Hazard, 1999). Furthermore, many health policy decisions directly influence the practice of nursing. These include: defining the scope of practice, regulation of practice environments, cost of malpractice insurance, government subsidization of nursing education and research, and securing direct and indirect reimbursement for services. Examples of federal agencies within the Department of Health and Human Services (DHHS) that directly impact nurses are: the Health Services and Resource Administration (HRSA) and, in particular, the Division of Nursing; the Centers for Medicare and Medicaid Services (CMS); and the National Institute for Nursing Research (NINR).

Four interrelated characteristics of present-day health care systems have significantly shaped health policy and will continue to influence the practice of nursing now and in the near future. These characteristics are: systemic change, interdependence, financial viability, and the changing face of the health professions. The ability to adapt to systemic change within the health care system, the movement toward the interdependence of all health care providers (along with the changing face of the health professions), and the realization that financial viability drives and determines which health care institutions and systems of care survive and flourish (Jennings, C. P., 2000). Taken as a whole these characteristics provide the context for nursing education, practice, and research.

Participation of nurses in the shaping of health policy and public health policy is critical for the future of the profession and the well-being of all citizens (Algase, Beel-Bates, & Ziemba, 2004). Political participation goes hand in hand with policy development. Political participation or action is not new to nurses. For many years nurses have advocated for issues that promote the profession—money for education and research, scope of practice concerns, reimbursement for services by third-party payers, and more recently the passage of the Nurse Reinvestment Act (a federal effort to combat the nursing shortage). Today, nurses are lobbying to secure “a place at the table.” They are active participants in setting the broader health policy agenda. Nurses have been influential in developing protocols for first responders in bioterrorist attacks; they have challenged some of the key provisions in the Medicare Prescription Drug Benefit legislation; they have fought to expand access to primary care services in rural and underserved areas; and they are strong proponents for universal health care.

Health policy is a worthy and exciting arena for nursing practice. It includes the political imperative to participate in all phases of the policy and political cycle. Achieving “political maturity” is a goal that requires that each and every nurse have the proper education and skill development to effectively intervene in the policy process in order to achieve professional and national goals for long-term health and well-being. Nursing organizations, such as the American Nurses As-
sociation (ANA), lobby on behalf of all nurses. Often, organizations such as the ANA are able to directly interface with policymaking bodies at the local, state, and federal level. It is important that nurses develop effective channels for communicating with policy decision makers.

In closing, nurses must remember that the relationship between nursing and health policy is reciprocal and mutually reinforcing—herein lies the greatest hope for the future of nursing and the nation’s health care.

Carole P. Jennings

Health Services Administration

Health services administration (HSA) research is multidisciplinary and focuses on factors and issues effecting delivery of health services in a wide variety of settings from a systems perspective. HSA also focuses on the effect of health care processes on the health and well-being of clients and populations. Issues such as access to care, development of tools to measure health status, effectiveness of treatment modalities, health policy, delivery systems, professional practice, impact of magnet hospitals, outcomes of care, impact of managed care, financing of health care, and organizational change only partially represent the vast diversity of foci for HSA research. A breadth of issues, and intent to affect care delivery, are the hallmarks of HSA research.

Health services administration research, by its multidisciplinary nature, must address nursing issues for full impact on systems affecting care delivery. Nurses, as the largest health care delivery professional discipline, are integrally involved in all aspects of the health care system. Nurse researchers in nursing administration, practice specialties, nursing health policy, and community health can lead or participate in HSA research. These types of research reflect the team concept by including all disciplines involved in a specific project and by reflecting those disciplines’ perspectives in the study design and findings.

If quality of services is to be assured and improved, this type of research is necessary for improving care systems. Whether the research focus is smoking cessation or health policy, the HSA approach would be to investigate preferred systems for optimal client outcomes. Nurse researchers must shift their focus from studying individual adaptation to illness or disease to investigating the systems that facilitate maximizing such adaptation if they are participating in HSA research. The relevance to nursing comes in the ability to replicate such systems across practice settings and to extend the influence of research knowledge in practice. Magnet hospital research is attempting to do this by linking magnet characteristics to lower mortality rates and increased patient satisfaction as well as other outcome markers (Scott, J., Sochalski, & Aiken, 1999).

In this age of multidisciplinary emphasis, nurses’ participation in HSA research places them in a position to influence client outcomes on a larger scale than in the past. Many nursing research efforts have been hampered by not accounting for the influence of other disciplines on client outcomes. The contribution of nursing to those outcomes is difficult to measure in isolation from medical and allied health treatments. There is tremendous potential for nursing’s effects on client outcomes to be showcased by involvement in HSA research. Such research is presented in national and international multidisciplinary forums that have potential to influence health policy beyond the discipline of nursing.

Donabedian’s (1980) model of using a “structure, process, and outcome” framework for evaluating the quality of medical care has been widely adopted for many HSA studies. Structure relates to the physical and organizational framework of the setting where care is delivered. Process refers to the “dynamic exchange” between provider and client that includes all interchanges that occur in support of care events. Outcomes are the dependent variables, the “measurable events” that occur as a result of the structure and process of care (Scott, J. D., 1996). The Joint Commission on Accreditation of
Healthcare Organizations (JCAHO) has used this framework to evaluate health care organizations for decades. In 1997, JCAHO shifted emphasis, through its Agenda for Change, to stress outcomes and to develop performance indicators that are less reliant on structure and process. Beginning in 2002, JCAHO has the ability for “rigorous comparison of the actual results of care across hospitals” (JCAHO, 2003b).

Health care delivery systems routinely engage in action research aimed at improving the quality of care. Quality improvement research has become ingrained in the very process of care delivery, and nurses are integrally involved in these studies. Although often not theoretically based, such studies have a direct impact on quality of care in our country and have potential to improve care broadly if the results are disseminated more widely, rather than serving solely as the basis for internal, proprietary improvement processes.

Insurers are using the results of treatment effectiveness studies to determine which procedures to cover. Health Maintenance Organizations (HMO) practices are evaluating the effect of their wellness plans on subsequent client illness patterns. Many of these studies examine cost-effectiveness.

The federal government routinely invests in HSA research. Agencies such as the Agency for Healthcare Research and Quality (AHRQ), the Center for Medical Effectiveness Research, the Health Care Financing Administration, the National Institutes for Health, the Health Resources and Services Administration, and the National Institutes for Nursing Research, to name a few, are all engaged in funding and directing HSA research. The Medical Treatment Effectiveness Program was begun in 1989 by the Agency for Health Care Policy and Research (now AHRQ) to investigate clinical conditions that are costly, have high incidence, evidence variation in clinical outcomes, and affect Medicare or Medicaid programs. There are, at present, 19 Clinical Practice Guidelines that review best practices for these clinical conditions. Government support for HSA research directly influences health policy by making study results available to policymakers, caregivers and the public. Information is available at governmental web sites. At its Research in Action site (AHRQ, 2003b), AHRQ-sponsored studies in the categories of cost, disease-related, elderly, pharmaceuticals, and quality of care are synthesized for the purpose of making them generally available for the improvement of care. A similar AHRQ page highlighting the National Quality Measures Clearinghouse provides “evidence-based quality measures and measure sets” (AHRQ, 2003a).

Private foundations actively fund HSA research. The Robert Wood Johnson Foundation is notable for its efforts to improve nursing care delivery. The Commonwealth Fund, the Henry J. Kaiser Foundation, and the Pew Charitable Trusts are among the most notable organizations that support HSA research on an ongoing basis.


HSA research is engaged in investigating improvement of health care delivery and in discovering ways to provide more effective and efficient care, both of which can have a great impact on the health care system. Scarce resources can be more effectively utilized if we improve care delivery to “best demonstrated practices” levels. Of course, these levels continue to evolve and to be refined as knowledge expands. Thus, HSA research must continually expand understanding to maximize the potential of an evolving health care system.

HSA research can provide a valuable check to the financial emphasis of our current managed care system. An emphasis on the popula-
tion’s needs and how they might influence health care systems and health policy to maximize public health would be a welcome change from the financial emphasis of the past (Ingersoll, Spitzer, & Cook, 1999). Outcomes research can demonstrate unanticipated effects of limiting access to care, treatment options, and care provider choice. Long-term outcomes can be monitored through systematic longitudinal studies to determine relative health status of client populations based on payer system, for-profit status, demographic variables, and treatment options. HSA research is needed to investigate these larger issues and to influence health policy for years to come.

Mary L. Fisher

Health Services Research

Health services research is a part of a broad scientific continuum which addresses fundamental mechanisms of health and disease including prevention, diagnosis, treatment, and the evaluation of health care services and the system in which they are delivered. It is described by the Institute of Medicine as “the interdisciplinary field that investigates the structure, processes, and effects of health care services” (Institute of Medicine, 1995). It is different from biomedical research; however, the boundaries between the two are not distinct, nor should they be. Domains along the research continuum overlap, thereby reducing the gaps that would occur if they were totally separate (Eisenberg, 1998).

Health services research addresses issues of health care organization, delivery, financing, and utilization, as well as patient and provider behavior and the quality, outcomes, effectiveness, and cost of health care. It appraises both clinical services and the system in which these services are provided. It evaluates information about the cost of care and its effectiveness, efficiency, quality, and outcomes and it includes studies of the structure, process, and effects of health services for individuals and populations. Both basic and applied research questions are addressed, including aspects of individual and system behavior and the application of interventions in practice settings (Eisenberg, 1998).

The health care environment is changing rapidly and is characterized by consolidation of health plans and movement of patients and providers into managed care settings. Efforts to contain rising health care costs are coupled with fears that cost-containment measures will lower the quality of care. Problems related to access to health care and health insurance coverage persist for many Americans. This market-driven health care system cannot function efficiently without better information for all decision makers in health care. Purchasers are looking for value at low cost, patients want to make informed decisions about care, clinicians need information about evidence-based treatments, health plans must determine which services to cover, and institutional providers need to make organizational and management decisions. Health services research addresses the information needs of all of these groups at the clinical, system, and policy decision level (Agency for Healthcare Research and Quality, 2004).

Outcomes and effectiveness research is a type of health services research that studies the impact of interventions on patients and the effectiveness of treatments in noncontrolled settings. The terms “outcomes research” and “effectiveness research” have been used to refer to a range of studies, and no single definition for either has gained wide acceptance (Stryer, Tunis, Hubbard, & Clancy, 2000). Effectiveness research is often contrasted with efficacy research. Effectiveness research is conducted in typical practice settings with diverse patient populations; efficacy research is carried out in more controlled research settings, often with a less diverse population (Hubbard, Walker, Clancy, & Stryer, 2002). Outcomes research seeks to understand the end results of particular health care practices and interventions. In this context, end results include effects that people experience and care about, such as change in the ability to function.
Health services research is heavily invested in issues of quality, patient safety, and disparities in health care. Evidence is needed to inform practice. Health services research provides that information on interventions related to benefits, risks, and results so that both clinicians and patients can make informed choices about care. Propelled by the Institute of Medicine report *To Err Is Human* (Institute of Medicine, 2000), there is growing recognition of the need for research into better methods of safeguarding health care services and delivery (Hubbard et al., 2002).

An important end result of health services research is the translation or transformation of the findings into practice and policy and the utilization of evidence-based care. Health services research will continue to improve science-based information on health disparities so that the health of minorities, women, and children is enhanced.

Health services research is germane to nurses. Understanding the impact of nursing interventions is an important component of health services research because enhanced nursing care is critical for the growing number of elderly and chronically ill people. Nurses play a large and significant role in the interdisciplinary team, and many of the outcomes critical to health services research function (e.g., improved health status and satisfaction) are measures that are usually dependent on the collective practice of the entire health care team (Hubbard et al., 2002). Nurses have always been involved in patient outcomes, and the outcome measures noted above are important components of current nursing education. Nurses’ high degree of interaction with patients makes them likely candidates as health services researchers or members of the health service research team. The Agency for Healthcare Research and Quality, a major funder of health services research, encourages nurse scientists to apply for grant support. Funding opportunities can be found at AHRQ’s nursing web site: www.ahrq.gov/about/nursing.

Investigating the various components of nursing care and how they influence patient outcomes represents an essential area of research needing further development. As prime observers of and participants in health care delivery, nurses can make important and valuable contributions to health services research (Hubbard et al., 2002).

**Copyright statement:**
The author was an employee of the U.S. Federal Government when this work was conducted and prepared for publication. Therefore, it is not subject to the Copyright Act, and copyright cannot be transferred.

*Disclaimer:* 
The views expressed in this article are those of the author and do not necessarily reflect those of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

**Heddy Bishop Hubbard**

**Health Systems Delivery**

Health systems delivery is a global term used to define the structures and processes by which health care is provided to individuals and populations. The term generally refers to the collective availability of services rather than to an individual organization by itself, although larger organizations such as academic health science centers may use the term to reflect the extent of their capacity. The features that distinguish health systems from other connected services are their level of differentiation, their extent of centralization, and their degree of integration (Bazzoli, Shorr, Dubbs, Chan, & Kralovec, 1999). Health systems have a single owner and some type of decision-making oversight group, whereas health networks (which also provide an array of services) are more loosely linked and each participating organization maintains its original ownership (Bazzoli et al.).

Probably the most significant influence on health systems delivery has been the introduction of managed care, which places restrictions on access and consumption of services and has prompted delivery systems to identify ways to provide a variety of services more efficiently and at a lower cost (Cook, J. A.,
Ingersoll, & Spitzer, 1999). Investigations of managed care delivery systems have identified five characteristics common to the service delivery processes associated with these systems—the use of population-based strategies for cost containment, a focus on wellness rather than illness care, the increased influence of consumers on services offered and selected, the interdependence of professionals involved in care, and the use of delivery systems reengineering to improve services (Ingersoll, Spitzer, & Cook, 1999). Comprehensive studies of these processes are limited, with even less information available concerning the impact of systems delivery models on care delivery outcome.

Subsumed within the broader classification of health services research, studies pertaining to health systems delivery focus on which collection of services are most effective and efficient for achieving maximum care delivery outcome. Few large-scale investigations of delivery systems are available, however, with most studies examining specific types of organizations (e.g., hospitals, long-term care, hospice care). Although these studies are not focused on health delivery systems, per se, they provide useful information about the structures and processes that may achieve favorable outcomes in individual or linked organizations.

The organizational characteristics investigated in prior research were examined recently in a comprehensive analysis of the ways in which care delivery systems influence patient safety. The state of the science was reviewed by an Institute of Medicine (IOM) expert panel, which identified four environmental factors that consistently contribute to the quality of care delivered and the patient outcomes seen (Page, 2003). The IOM expert panel described these systems characteristics as sources of threats and labeled them management, workforce, work processes, and organizational culture. Using the literature available, they proposed several safeguards for addressing these systems components and improving patient safety. Included in the recommendations were: developing governing boards that focus on safety, introducing evidence-based management of organizational structures and processes, assuring high levels of leadership ability, providing sufficient staffing, promoting ongoing learning and decision support at the point of care, encouraging interdisciplinary collaboration, creating work designs that promote safety, and achieving an organizational culture that continuously addresses patient safety (pp. 16–17).

Multisite studies supporting the IOM expert panel’s recommendations have been drawn from acute care, long-term care, and home care settings. Among the studies providing data to support these recommendations were several multisite investigations conducted by nurse researchers—four of which are summarized here. The studies included in this description were selected because of the variables they investigated, their inclusion of institutions from a variety of locations, and their potential application to health delivery systems regardless of size or type of services delivered.

The most commonly measured structure variable in health delivery systems research is nurse resources, with several large-scale investigations exploring the impact of nurse staffing mix and nursing care hours on employee, organizational, and patient outcomes. Three studies of hospitals drawn from across the U.S. have demonstrated consistent evidence of the beneficial effect of registered nurse (RN) care hours on length of stay (Kovner & Gergen, 1998; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002), mortality (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002), and adverse events (Aiken, Clarke, Sloane, et al.; Kovner & Green; Needleman et al., 2002).

Comparable findings were seen in a multisite investigation of the best and worst performing nursing homes, although the investigators of this study defined nurse resource variables as an indicator of care delivery process, rather than organizational structure (Anderson, R. A., Hsieh, & Su, 1998). Although a case can be built for defining nurse resources as both a structure and a process variable, simply identifying skill mix or
percent of RN hours does little to clarify what actually occurs during the delivery (or process) of care by one type of provider (RN) versus another (licensed practical nurse [LPN] or patient technician). Nonetheless, in this study the greater the number of RNs, the better the patient outcome. Structure variables associated with type of ownership, size of nursing home, and percentage of private-pay residents were not associated with any of the outcomes measured.

Few studies have explored the impact of processes of care on care delivery outcome, primarily because this variable is difficult and costly to assess. Care delivery processes evolve over time and change in response to work-group makeup, leader vision, standards used to guide care delivery, and types of patients served. Monitoring what transpires during the interactions that take place among care providers and between care providers and patients and families requires an understanding of group relationships, individual motivation and need, and the ways in which work gets done. Consequently, studies of organizational processes are inherently complex and difficult to carry out. As a result, employee perceptions are often used as proxy indicators for work-group or leadership behaviors and the processes they use to get work done. For example, nurses are commonly surveyed about their perceptions of ideal and actual nurse leaders or work groups. Favorable perceptions of both are frequently related to nurse satisfaction and retention (Page, 2003). What processes nurse leaders and work groups use to produce these favorable or unfavorable perceptions are less clear, with most reports describing general categories of behaviors (e.g., inclusiveness, cohesiveness) to denote the characteristics of ideal leaders and group members. How they go about creating an inclusive and cohesive process is unknown.

One area of increasing interest in health systems delivery research is the impact of health care teams and team functioning on care delivery outcome. This interest is generated by evidence linking poor interpersonal interactions among team members with health care errors (Ingersoll & Schmitt, 2003). Because the number and makeup of teams varies significantly even within a single institution, measuring the effect of team performance on care delivery outcome is troublesome. Moreover, the structure of the team, including its hierarchical nature, its placement within the organizational system, and its mission and purpose all contribute to its potential for effectiveness and ultimate impact on care. Consequently, measuring one team’s performance will not necessarily help with understanding what processes result in favorable care delivery outcomes. Ideally, a variety of teams should be monitored to identify differences in the ways the team members work together to achieve a good effect.

Studies of comprehensive health delivery systems are in their infancy, with limited information available from comprehensive multisite investigations of health care organizations. Additional research is needed that focuses on both the structures and the processes that promote favorable outcomes for employees, patients, and organizations. A combination of approaches will be required to achieve this goal, with qualitative methods used for understanding care delivery processes and expectations of providers and quantitative methods for examining causal relationships between organizational structures, processes, and outcomes seen.

GAIL L. INGERSOLL

Hemodynamic Monitoring

Hemodynamic monitoring is the use of advanced technology and application of physiological principles to clinically assess the cardiac function and circulatory system in critically ill patients. The pulmonary artery catheter was first introduced in 1970 by Dr. Jeremy Swan (Swan et al., 1970), and continues to be a frequently used tool in the critical care setting. The catheter tip is positioned in the distal pulmonary artery and is used to monitor pulmonary artery systolic, diastolic, and mean pressures, and to obtain blood samples.
to determine mixed venous oxygenation. The distal balloon port is used to measure the pulmonary artery wedge pressure (PAWP) when the balloon port is inflated with 1.5 cc of air. Additional hemodynamic parameters and data are obtained from other ports and lumens of the catheter, such as right atrial pressure, cardiac output measurements, blood (core) temperature, and saturation of venous oxygenation (SvO₂).

Using data obtained at the bedside from the pulmonary artery catheter and other physiologic indices such as cardiac output, heart rate, preload, afterload, and contractility, critical care nurses and physicians are able to make rapid assessments and determinations about the clinical status of the critically ill patients. The catheter enables clinicians to assess ventricular function, diagnose complications following acute myocardial infarction, differentiate shock states, cardiac and pulmonary disorders, manage high-risk cardiac surgical patients, and monitor unstable patients with complexities such as sepsis and multiple organ dysfunction. The original balloon-tipped, flow-directed thermodilution catheter has evolved since 1970 and has added enhancements such as saturation of venous oxygenation (SvO₂), right ventricular volumes and ejection fraction, continuous monitoring of cardiac output, and intracardiac atrioventricular sequential pacing.

Newer technologies to monitor cardiac output using noninvasive methodology include the Esophageal Doppler monitor and the Exhaled Carbon Dioxide (CO₂) monitor. The Esophageal Doppler monitor measures cardiac output via a probe placed within a naso-gastric tube that measures aortic blood flow, enabling the clinician to assess stroke volume and heart rate adjusted cardiac output. A second technology, Exhaled CO₂, is a noninvasive method of cardiac output monitoring that measures blood flow from exhaled CO₂ using a modified Fick Equation. Its clinical application is limited to the operating room setting since the technology requires measurement of blood flow from exhaled CO₂ under controlled ventilation, but it has great potential for the future when the technology can be used for different modes of mechanical ventilation with or without spontaneous breathing. Examining the impact these new technologies may have on patient outcomes is an important area for future nursing research.

Hemodynamic monitoring has great relevance to nurses in critical care because of the important role it plays in the care of critically ill patients. Critical care nurses are responsible for continuous monitoring, interpretation, and trending of hemodynamic indices and for communicating critical information to physician colleagues. Understanding the implications of subtle changes in pressures and parameters will directly impact a patient’s response to complex therapeutic interventions such as fluid administration and manipulation of vasoactive drips. Utilizing research to examine existing practices and to change practice is vital to ensure research-based practice and positive patient outcomes.

The majority of nursing research on hemodynamic monitoring has been focused on the technical and clinical variables affecting accuracy of pulmonary artery pressure monitoring. Because many variables affect accuracy, this topic is particularly relevant for nurses caring for critically ill patients. The standard in critical care has traditionally been to reference (level the air/fluid interface stopcock at the phlebostatic axis) and zero the catheter system a minimum of once per shift and at times more often, to offset zero drift, and to ensure accuracy. The results of one nursing study suggested that zeroing disposable transducers may be required only once during hemodynamic monitoring, before initial readings are obtained (Ahrens, Pennick, & Tucker, 1995). These findings encourage practitioners to reevaluate a long-held critical care nursing standard and demonstrate the value of keeping pace with new technology. Replication studies are needed in this area to validate this practice.

A major focus in recent nursing research has been to study hemodynamic pressures in various backrest elevations. There is considerable nursing research supporting accurate and reliable measurement of hemodynamic
pressures in backrest elevations from 0° to 60° if the air/fluid interface (zeroing stopcock) is leveled or referenced at the phlebostatic axis. Lateral positioning may be used if the air/fluid interface is leveled at the phlebostatic axis, but the patient must be at a 90° side position with the backrest flat to ensure accuracy. The phlebostatic axis in the right lateral 90° position is the fourth intercostal space at midclavicular, compared to the fourth intercostal space at the left sternal border in the left lateral 90° position (Paolella, Dorfman, Cronan, & Hasan, 1988). The question of accuracy and reliability of measurements in lateral positioning other than 90° has been the subject of two recent nursing studies. In one study, pulmonary artery (PA) pressures were obtained with patients in the 60° lateral position (Aitken, 2000). The dependent midclavicular line at the level of the fourth intercostal space was used as the zero reference level. Statistically significant differences were found and the author concluded that PA pressures cannot be obtained with patients in the 60° lateral position. Another group of researchers studied the effect of 30° lateral recumbent position on PA and PAWP pressures (Bridges, Woods, Brengelmann, Mitchell, & Laurent-Bopp, 2000). Using an angle-specific left atrial reference point, the investigators found a statistically significant difference between measurements of PA pressures with the patient supine and those obtained in 30° lateral position. Mean differences were small and the author considered the measures clinically equivalent to those of patients in supine position. The optimal reference point for lateral positions other than 90° with backrest flat continues to be an area that will require further study and validation in future research studies.

Recent studies have examined cardiac output technology in patients with low cardiac output. Continuous cardiac output technology was found to be more precise than measurements using the bolus technique in one study of patients with low-cardiac output (Albert, Spear, & Hammel, 1999). The practice of using room-temperature injectate versus iced solution was supported in another study examining traditional thermodilution methods of cardiac output in patients with low cardiac output (Kiely, Byers, Greenwood, Carroll, & Carroll, 1998).

To ensure accuracy and reliability, all hemodynamic pressures are read at end expiration in ventilated patients as well as those breathing spontaneously. Numerous studies continue to support the use of a strip chart recorder to provide more reliable and accurate hemodynamic readings than do digital data (directly off the monitor) in both ventilated and spontaneously breathing patients.

Since the advent of the pulmonary artery catheter, technology in hemodynamic monitoring has advanced at a rapid pace. Future studies must continue to keep pace with the ever-changing technology. Technical difficulties in measurement, as seen in patients with severe respiratory variation, in ventilated patients on high levels of positive end expiratory pressure (PEEP), and in the presence of large “v” waves on the hemodynamic waveform, are examples of clinical issues that continue to confound critical care nurses. Critically evaluating the use of both new and traditional technology is essential to the provision of good patient care.

The potential risk versus benefit of pulmonary artery catheterization is an important ethical consideration in hemodynamic monitoring. Questions have been raised within major medical journals and the media about the safety and efficacy of pulmonary artery catheterization. As a result of the controversy, organizations such as the Society of Critical Care Medicine have intensified efforts to conduct large randomized controlled trials to evaluate critically the safety and effectiveness of PA catheters in critically ill patients.

The results of studies on the clinical competency of critical care nurses’ knowledge of PA catheters have been less than impressive, and underscore the need to provide ongoing training and competency assessments of nursing staff to ensure safe and quality patient care. Hemodynamic monitoring is a valuable tool if used judiciously by specially trained
and competent medical and nursing professionals.

**Maureen Keckeisen**

**Henderson’s Model**

Since 1960 when the International Council of Nurses (ICN) first published *Basic Principles of Nursing Care*, a work their Nursing Service Committee commissioned, Virginia Henderson’s description of nursing and the unique function of the nurse has been used throughout the world to standardize nursing practice. *Basic Principles of Nursing Care* was written just after the 1955 publication of Harmer & Henderson’s *Textbook of the Principles and Practice of Nursing*, 5th edition (Henderson, 1955), which until 1975 was the most widely used nursing textbook in English and Spanish speaking worlds. A third book, *The Nature of Nursing* (Henderson, 1966, 1991), included implications for how nursing could provide direction for four essential functions of a profession: service, education, research, and leadership. Henderson’s model of nursing is most succinctly presented in the ICN’s *Basic Principles of Nursing Care*, a work available in 30 of the world’s languages. She says:

> The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to a peaceful death) that the person would perform unaided given the necessary strength, will or knowledge. And to do this in such a way as to help the individual gain independence as rapidly as possible. (Henderson, 2004, p. 12)

Basic nursing care means helping patients with activities such as eating and drinking adequately, eliminating body wastes, and moving and maintaining desirable postures or providing conditions under which he can perform them unaided.

Henderson also described conditions in persons that always affect basic needs such as nursing care of newborn or the dying.

> There are also pathological states (as contrasted with specific diseases) that modify basic need, such as marked disturbances of fluid and electrolyte balance including starvation states, pernicious vomiting, and diarrhea, acute oxygen want, and shock (including “collapse” and hemorrhage).

According to Henderson’s model, the nurse is temporarily the consciousness of the unconscious, the love of life for the suicidal, the leg of the amputee, the eyes of the newly blind, a means of locomotion for the infant, knowledge and confidence for the young mother, a “voice” for those too weak to speak, and so on. (Henderson, 1997, pp. 23–24)

That this model was first authored in 1950 when Henderson was preparing the 5th edition of her textbook is noteworthy. The era of the antibiotic made much of what Nightingale wrote in *Notes on Nursing* about the importance of nature obsolete. Needed was a description of nurses’ functions that built on Nightingale’s intervention-focused book and extended it into the era of science and biotechnology. *Basic Principles of Nursing Care* [BPNC] and *Notes on Nursing* [NN] are remarkably similar in content. Eat and drink adequately in BPNC became the modern version of the “Taking food” and “What food?” sections of NN, for example. Henderson continued the emphasis on interventions but shifted the ideal performer of procedures from nurses to nurse-educated and nurse-supported patients, encouraging independence, especially important in chronic illness. Neither doctors nor hospitals are required to practice nursing under this model.

Gladys Nite (Nite & Willis, 1964) explicitly tested the Henderson model of nursing in clinical experiments of effective nursing care for cardiac patients. Brooten (Brooten & Naylor, 1995) and Naylor (Naylor et al., 1999) implicitly examined this model in clinical research. The “nurse dose” which they seek to measure may indeed be some quantified measure of this unique function. Similarly, other researchers seem to be addressing the universality of this unique nurses’ func-
tion in their examination of the effectiveness of nurses in different roles and in different settings (S. Douglas et al., 1995; Landefeld, Palmer, Kresevic, Fortinsky, & Kowal, 1995; Olds et al., 1997, 2002).

Henderson went on from this work to prepare a critique of nursing research and an index of the English-language nursing literature written between 1900 and 1960. When finished, she revised the textbook which she had twice previously redone. Remarkably, the textbook incorporated countless citations from the professional literature synthesizing what was known about the nursing profession up to its 1978 publication date. Principles and Practice of Nursing, 6th edition (Henderson & Nite, 1978), organized a disparate literature around her model of nursing which had not appreciably altered in the nearly 20 years since it first appeared. Rather than changing her mind based on her close reading of the literature, Henderson synthesized the citations into a coherent reference document, an evidence-based text as it were.

Three of Henderson’s papers extend her model; two by validation, the other by contradiction. The Concept of Nursing (Henderson, 1978) specifically addressed her work as a model. Preserving the Essence of Nursing in a Technological Age (Halloran, 1995, p. 96) extended her ideas to include services nurses provide in intensive care units and was organized using the four essential professional functions first depicted in The Nature of Nursing: practice, education, research, and leadership. In Nursing Process—Is the Title Right?, Henderson (Halloran, p. 199) contradicted what had become the accepted alternative to the use of the word “nursing” by arguing that the word “process” unnecessarily constrained professional vision and precluded experience, logic, expert opinion, and research as bases for practice.

The most complete exposition of Henderson’s model of nurses’ function and nursing practice is contained in the 6th edition of Principles and Practice of Nursing. This reference text is a modern book largely unknown to the American nurses who today struggle with many of the issues of professional practice elaborated on in the documents related to the Henderson model.

Edward J. Halloran

Hermeneuts

Historically, hermeneutics described the art or theory of interpretation (predominantly that of texts) and was prevalent in disciplines such as theology and law. German philosopher Wilhelm Dilthey (1833–1911) redefined hermeneutics as a science of historical understanding and sought a method for deriving objectively valid interpretations. Martin Heidegger (1889–1976) recast hermeneutics from being based on the interpretation of historical consciousness to revealing the temporality of self-understandings (Palmer, R., 1969).

Hermeneutics is an approach to scholarship that acknowledges the temporal situatedness of both the researcher and the participants. Time as it advances, or time-as-lived, is central to the work of hermeneutics. The centrality of time is what differentiates hermeneutics from traditional forms of Husserlian phenomenology. The hermeneutic scholar works to uncover how humans are “always already” given as time. Hermeneutics has no beginning or end that can be concretely defined but is a continuing experience for all who participate.

Interpretation presupposes a threefold structure of understanding, which Heidegger called the fore-structure. The premise of the fore-structure is that all interpretations are based on background practices that grant us practical familiarity with phenomena. Heidegger called this sense of phenomena fore-having. Our background practices also form the perspective from which we approach understanding. Our interpretive lens, termed fore-sight, is constituted by background practices. Fore-conception describes our anticipated sense of what our interpreting will reveal. This too is shaped and framed by our background practices. Understanding is circular, and humans as self-interpreting beings
are always already within this interpretive (hermeneutic) circle of understanding. Thus, “interpretation is never a resuppositionless grasping of something previously given” (Heidegger, 1927/1996, p. 141). Hermeneutic researchers do not attempt to isolate or “bracket” their presuppositions but rather to make them explicit. Hans-Georg Gadamer (1989), a student of Heidegger’s, has extended hermeneutical research in this area. The essence of hermeneutics lies not in some kind of mystic relativism but in an attitude of respect for the impossibility of bringing the understanding of “Being” to some kind of final or ultimate closure. The way of hermeneutics is to allow oneself to be drawn into the complexity of the simple and overlooked (Heidegger, 1977/1993). The work of interpretive phenomenologists moves beyond traditional logical structures to reveal and explicate otherwise hidden relationships. Calling attention to human practices and experiences, hermeneutics is closely related to critical social theory, feminism, and postmodernism. Unlike them, however, hermeneutics does not posit politically or psychologically determined frameworks as the modus operandi of the method, nor does the interpretive phenomenologist attempt to posit, explain, or reconcile an underlying cause of a particular experience. Rather, the description of the common practices and shared meanings is intended to reveal, enhance, or extend understandings of the human situation as it is lived.

The thinking that accompanies hermeneutical scholarship is reflective, reflexive, and circular in nature. However, describing the process of hermeneutical research may suggest a linearity and structure that belies the seamless, fluid nature of this approach to inquiry. On the other hand, not describing the process implies a thoughtless or haphazard approach that does not reflect the scholarliness of hermeneutical research. Therefore, although a brief summary of hermeneutical analysis is given here, the reader is referred to several authors (Benner, 1994; Gadamer, 1960, 1989; Grondin, 1995; Palmer, 1969) who discuss hermeneutical methodology in more detail.

Commonly, hermeneutical researchers work in teams and study areas of personal interest and expertise. Each interview, as text analogue, is read by team members to obtain an overall understanding. Members of the research team identify common themes within each interview and share their written interpretations, including excerpts from each interview, with the team. Dialogue among team members clarifies the analyses. As the team analyzes subsequent interviews, they read each text against those that preceded it. This enables new themes to emerge and previous themes to be continuously refined, expanded, or overcome. Team members clarify any discrepancies in their interpretations by referring to the interview text or reinterviewing participants. This is not to say that hermeneutic researchers reduce phenomena to differences or similarities. Rather, through dialogue, the team members explicate the practices of identifying the seemingly simple and overlooked.

Team members identify and explore themes that cut across interview texts. They reread and study interpretations generated previously to see if similar or contradictory interpretations are present in the various interviews. Though an underlying assumption of hermeneutical analysis is that no single correct interpretation exists, the team’s continuous examination of the whole and the parts of the texts with constant reference to the participants ensures that interpretations are focused and reflected in the text. Whenever conflicts arise among the various interpretations of the interviews, team members provide extensive documentation to support their interpretations.

Reading across postpositivist, feminist, critical, and postmodern texts, team members hold open and problematic the identification and interpretation of common practices. Team members read across all texts and write critiques of the interpretations. The purpose is to conduct critical scholarship using other interpretive approaches to extend, support, or overcome the themes and patterns identi-
fied by hermeneutics. In this way analysis proceeds in “cycles of understanding, interpretation, and critique” (Benner, 1994, p. 116). Like the hermeneutic circle, interpretations are complete but never ending.

During the interpretive sessions, patterns may emerge. A pattern is constitutive, present in all the interviews, and expresses the relationships of the themes. Patterns are the highest level of hermeneutical analysis. The hermeneutic approach provides an opportunity for team members and researchers not on the team to review the entire analysis for plausibility, coherence, and comprehensiveness. In addition, participants in the study may be asked to read interpretations of their interviews as well as the interviews of other participants to confirm, extend, or challenge the analysis. Others, not included in the analysis but likely to be readers of this study, may review the written interpretations. This review process exposes unsubstantiated and unwarranted interpretations that are not supported by the texts. The purpose of the research report is to provide a wide range of explicated text so that the reader can recognize common practices and shared experiences. The researcher writes the final report using sufficient excerpts from the interviews to allow the reader to participate in the analysis.

Hermeneutical research that draws on interpretive phenomenology was introduced to nursing by Patricia Benner in Expertise in Nursing Practice: Caring, Clinical Judgment, and Ethics. This study revealed nursing as an interpretive practice with skills, expertise, and practical knowledge (Benner, Panner, & Chesla, 1996). Viewing nursing as a practice rather than as an applied science presents a new approach to understanding that has implications for practice, research, and education. Hermeneutics deconstructs the corresponding relationship between theory and practice and reveals the practical knowledge and expertise that evolves over time.

Following the Benner study, hermeneutics emerged as a significant area of scholarship in nursing. Christine Tanner, through hermeneutical analyses of the narratives of nurses, has recast clinical judgment making and clinical thinking as interpretive practices. Nancy Diekelmann is utilizing hermeneutics to describe the concernful practices of teaching and learning. These shared practices of students, teachers, and clinicians offer a view of schooling, teaching, and learning as interpretive practices to transform conventional nursing education.

NANCY DIEKELMANN
PAMELA MAGNUSSEN IRONSIDE

History of Nursing Research

The first public health policy act was signed on July 16, 1798, by President John Adams. A public health service organization, later named the U.S. Public Health Service (USPHS), would operate hospitals and rest homes for sick merchant seamen. The act was expanded in 1877 as a result of a yellow fever epidemic in New Orleans that required the passage of the Quarantine Act of 1878.

In 1879 a national Board of Health was established to monitor public health regularly, especially in the area of sanitation. A weekly report that later became the Public Health Reports was published. The board had the authority to intervene in case of an epidemic. In the late 19th century, Robert Koch and Louis Pasteur made important discoveries about the nature of infectious diseases that explained the transmission of such diseases and aided in controlling their spread. In this control, government had a significant role.

Although the role of the federal government became significant in 1938 through grants-in-aid to universities under a research grants program, it is generally held that nursing research began after World War II, even though the work of Florence Nightingale (1820–1910) introduced the use of statistics in analyzing nursing data. Beginning in 1920, the Goldmark study was the first of the landmark studies of nursing. Research developed into nursing education, time studies, salaries,
supply and demand, employment conditions, costs, status of nurses, job satisfaction, needs, and resources. In 1955 the Nursing Research Grants and Fellowship Program of the Division of Nursing, USPHS, was established; it awarded grants for nursing research projects, nursing research fellowships, and nurse-scientist graduate training. In 1978 the Division of Manpower Analysis was established within the Division of Nursing in the Bureau of Health Manpower to conduct research on manpower.

In the 19th century, Florence Nightingale, a founder of modern nursing, was the first nurse to do research in connection with nursing, when she used statistics in the analysis of her data. She was the first biostatistic in nursing. Nightingale did her work alone and not until after World War II was there an organized, continuing effort to conduct further nursing research. Nursing care research is defined as research directed to understanding the nursing care of individuals and groups and the biological, physiological, social, behavioral, and environmental mechanisms influencing health and disease that are relevant to nursing care. Nursing research develops knowledge about health and the promotion of health over the life span, care of persons with health problems and disabilities, and nursing actions that enhance the ability of individuals to respond effectively to actual or potential health problems. The following is a summary of major hallmarks in the history of nursing research:

1920. Josephine Goldmark, under the direction of Haven Emerson, conducted a comprehensive survey that identified the inadequacies of housing and instructional facilities for nursing students.

1922. In a time study of institutional nursing, the New York Academy of Medicine, showed wide discrepancies in the costs of nursing education and services.

1923. The Committee for the Study of Nursing Education conducted the first comprehensive study of nursing schools and public health agencies. The final report was published as Nursing and Nursing Education the United States.

1924. The first nursing doctoral program was established at Teacher’s College, Columbia University.

1926. May Ayres Burgess was commissioned by the Committee on the Grading of Nursing Schools to ensure that nursing service provided adequate patient care. The result was the classic report, Nurses, Patients, and Pocketbooks.

1934. The second project of the Committee on the Grading of Nursing Schools was a job analysis reported in An Activity Analysis of Nursing. The grading of nursing schools was not realized until the establishment of the National Nursing Accrediting Service in 1950.


1936. The ANA scrutinized the economic situation of nurses by studying incomes, salaries, and employment conditions; it excluded public health nurses.

1940. Pfefferkorn and Rovetta compiled basic data on the costs of nursing service and nursing education.

1941. The United States Public Health Service (USPHS) conducted a national census on nursing resources in cooperation with state nursing associations as World War II loomed.

1943. The National Organization of Public Health Nursing surveyed needs and resources for home care in 16 communities. The work was reported in Public Health Nursing Care of the Sick.

1948. The publication of the Brown Report identified issues facing nursing education and nursing services for the first half of the century. The recommendations led to much research during the next 10 years, for example: studies on nursing functions, nursing teams, practical nurses, role and attitude studies,
nurse technicians, and nurse-patient relationships. Other studies rooted in the Brown report were on the hospital environment and economic security as well as the report Nursing Schools at Mid-Century, from the National Committee for the Improvement of Nursing Services. The Division of Nursing Resources (now the Division of Nursing) of the USPHS conducted statewide surveys and developed manuals and tools for nursing research. Major breakthroughs in nursing research were made by such studies as: (a) patient satisfaction, (b) patient classification studies, (c) problem-oriented record. These studies laid the groundwork for nursing research for the next 2 decades.

1949. The ANA conducted its first national inventory of Professional Registered Nurses in the United States and Puerto Rico. An Interim Classification of Schools of Nursing Offering Basic Programs was prepared with classifications I, II, and III according to specific criteria.

1950. The National Nursing Accrediting Service, established a system for accrediting schools of nursing.

1952. The journal Nursing Research was published in June 1952. It was the ANA’s first official journal for reporting nursing and health research.

1953. Leo Simmons and Virginia Henderson published a survey and assessment of nursing research which classified and evaluated research in nursing during the precious decade. Teachers College, Columbia University, established the Institute of Research and Service in Nursing Education under Helen Bunge.

1954. The ANA established a Committee on Research and Studies to plan, promote, and guide research and studies relating to the functions of the ANA (1968 published) ANA Guidelines in Ethical Values.

1955. The ANA established the American Nurses’ Foundation (ANF), a center for research to receive and administer funds and grants for nursing research. The foundation conducts its own programs of research and provides consultation to nursing students, research facilities, and others engaged in nursing research. Twenty Thousand Nurses Tell Their Story was published. The Nursing Research Grants and Fellowship Programs of the Division of Nursing, USPHS, were established to stimulate and provide financial support for research investigators and nursing research education.

1956. The study of Patient Care and Patient Satisfaction in 60 Hospitals was published.

1957. The Department of Nursing, established at Walter Reed Army Institute of Research, provided opportunities for growth in military nursing research. The Western Interstate Commission for Higher Education (WICHE) sponsored the Western Interstate Council on Higher Education for Nursing (WICHEN) to improve the quality of higher education for nursing in the western U.S., focus on preparing nurses for research, and develop new scientific knowledge and communicate research findings. Other such groups were the Southern Regional Education Board (SREB), New England Board of Higher Education (NEBHE), Midwest Alliance in Nursing (MAIN), and Mid-Atlantic Regional Nurses Association (MARNA).

1959. The National League for Nursing (NLN) Research and Studies (later the Division of Research) was established to conduct research, provide consultations to NLN staff, and maintain information about NLN research products.

1960. Faye Abdellah developed the first federally tested Coronary Care Unit and published Patient Centered Approaches to Nursing, which altered nursing theory and practice.

1963. The Surgeon General’s Consultant Group on Nursing reported on the nursing situation in the U.S. and recom-
mended increased federal support for nursing research and education of researchers. Nursing Studies Index, Volume IV, 1957–1959, was completed as a guide to analytical and historical literature on nursing in English from 1900–1959. Volume I, 1900–1929, was published in 1972; Volume II, 1930–1949, was published in 1970; and Volume III, 1950–1956, was published in 1966.

1964. Nursing Research: A Survey and Assessment provided a review and assessment of research in areas of occupational health, career dynamics, and nursing care.

1965. ANA Nursing Research Conferences (1965 through the 1980s) provided a forum for critiquing nursing research and opportunities for nurse researchers to examine critical issues.

1966. International Nursing Index was published. One of the first textbooks on nursing research was published by Abdellah and Levine: Better Patient Care Through Nursing Research.

1968. The ANA Blueprint for Research in Nursing and The Nurse in Research, ANA guidelines in ethical values were published.

1970. ANA Commission on Nursing Research was established and prepared position papers on human rights in research. Papers included: Human rights guidelines for nurses in clinical and other research (1974), Research in nursing: Toward a science of health care (1976), Preparation of nurses for participation in research (1976), and Priorities for nursing research (1976). An abstract for action made recommendations for changes in nursing such as increased practice research, improved education, role clarification and practice, and increased financial support for nursing. Overview of Nursing was supported by the Department of Health, Education, and Welfare, 1955–1968, to assess nursing research, knowledge, gaps, and future needs.

1971. The ANA Council of Nurse Researchers was established by the ANA Commission on Nursing Research to advance research activities and published issues in research: Social, Professional, and Methodology (1973). The Secretary’s Commission, Department of Health, Education and Welfare (DHEW) published Extending the Scope of Nursing Practice as a position of the health professions to support the expansion of the functions and responsibilities of nurse practitioners.

1973. The American Academy of Nursing was founded with 36 charter fellows to advance new concepts in nursing and health care, to explore issues in health care, the profession and society as directed by nursing, to examine dynamics of nursing, and to propose resolutions for issues and problems in nursing and health.

1977. Nursing Research became the first nursing journal to be included in Medline, the computerized information retrieval service.

1979. Healthy People, the Surgeon General’s report on health promotion and disease prevention, was published. Clinical content of nursing proceedings Forum on Doctoral Education in Nursing defined the content of nursing research at the doctoral level.

1980. Promoting Health, Preventing Disease: Objectives for the Nation was published. ANA published a social policy statement, which defined the nature and scope of nursing practice and characteristics of specialization in nursing.

1981. Strategies for Promoting Health for Specific Populations was published by the Department of Health and Human Services (formerly Department of Health, Education, and Welfare). DRGs (Diagnostic Related Groups) were mandated by Health Care Financing Administration for Medicare regarding reimbursement. This stimulated the importance of evidence-based practical nursing.

1983. The first volume of the *Annual Review of Nursing Research* series was published by Springer Publishing Company.

1984. The ANA formed the ANA Council on Computer Applications in Nursing to focus on computer technology pertinent to nursing practice, education, administration, and research. The ANA Cabinet on Nursing Research published *Directions for Nursing Research: Toward the Twenty First Century.*

1985. The National Center for Nursing Research (NCNR) was established in the PHS. Programs would work to enlarge scientific knowledge underlying nursing services, administration, and education. The Center was initially located in the Division of Nursing, Bureau of Health Manpower, Health Resources, and Services Administration, but in 1986 it became part of the National Institutes of Health (NIH). In 1993, the NCNR was renamed the National Institute of Nursing Research.

1988. The Agency for Health Care Policy and Research (AHCPR) within the Department of Health and Human Services (DHHS) was established to focus on the development of clinical practice guidelines, outcome measures, and effectiveness research. (The name was changed to Agency for Health Care Research and Quality).

Thirty years after the idea was first proposed by the National Institute of Health’s National Advisory Council, the National Center for Nursing Research (NCNR) was established in 1986. Its mandate was “to advance science to strengthen nursing practice and health care that promotes health, prevents disease, and ameliorates the effects of illness and disability.” The placement of NCNR at the National Institute of Health (NIH) moved nursing research into a broader based biomedical research environment and facilitated the collaboration between nursing and other research disciplines. On June 9, 1993, the NCNR was renamed and became the National Institute of Nursing Research, which placed nursing on an equal footing with other NIH institutes.

The National Institute of Nursing Research (NINR) is the key organ for funding nursing research grants and contracts and has approved priority areas for research as determined by its National Advisory Council for Nursing Research. NINR provides a scientific base for patient care and is used by many disciplines among health care professionals—especially by the nation’s 2.5 million nurses. NINR-supported research spans both health and illness and deals with individuals of all age groups. Nursing research addresses the issues that examine the core of patients’ and families’ personal encounters with illness, disability, treatment, and disease prevention. In addition, nursing research addresses issues with a community or public health focus. NINR’s primary activity is clinical research, and most of the studies directly involve patients. The basic science is linked to patient problems.

The nursing programs of the USPHS stimulated the postwar expansion of nursing services through pilot studies, nursing research, and community health services. The Division of Nursing Resources, with a modest budget
of $95,000 and a small staff, was able to undertake a number of landmark studies to find solutions to postwar nursing problems in hospitals and health agencies. During the years 1949 to 1955, a number of state surveys of nursing needs and resources were conducted in almost all states.

In 1954, among the many studies and tools developed by the USPHS Division of Nursing Resources, (now the Division of Nursing) was a cooperative study carried out with the Commission on Nursing of Cleveland, Ohio, to discover the reasons for the understaffing of nursing departments. A by-product of the study was that it produced the outcome measure satisfaction study. Another study involved the use of disease classification for nursing planning. The diagnoses were then coded and classified into 58 groups representing discrete nursing problems. A similar methodological approach was followed in the development of the problem-oriented medical record more than a decade later and in the development of Diagnostic Related Groups. In 1955, Congress earmarked $625,000 for nursing research and fellowships that were awarded directly to universities, hospitals, health agencies, and professional associations.

The Army Nurse Corps initiated nursing research in the military and has been a major contributor to the evolution of both military and civilian nursing research. The army developed a program designed to concentrate on clinical nursing research in addition to fostering participation in the collaborative studies of other disciplines.

The history of nursing research in the navy (primarily unpublished master’s theses) covers research topics that are broad and focus on various aspects of the organization and administration of nursing service. Further work to incorporate nursing research into the Navy Nurse Corps became prominent in 1987, when the navy conducted a review of billets and identified the need for doctorally prepared nurses.

The history of nursing research in the air force is found primarily through the review of unpublished mimeographed documents covering research at the School of Aerospace Medicine at Brooks Air Force Base, Texas. Among the research topics reported are the development of equipment for aeromedical evacuation (such as examination lamps, oxygen and humidity apparatus, hand disinfection devices, patient monitoring and blood pressure measurement, litter lift, and transportable airborne stations). Physiological and psychological changes experienced by air force nurses associated with flying duty on jet and propeller aircraft and ways to evaluate patient care in flight are other areas of research.

In the Fall of 1990, representatives from the army, navy, and air force met to discuss collaborative research among the services. This group formed the Federal Nursing Research Interest Group, which later became the Tri-Service Nursing Research Group (TSNR Group). The TSNR Group was made responsible for finding ways to promote military nursing research both collectively and individually, within and across the services. The initial appropriation for the TSNR program under S.R. 102-154 was $1 million for fiscal year (FY) 1992 and it increased to $5 million in FY 1996, $6 million thereafter, authorizing the TSNR program as part of the Department of Defense Health Care Program, administered by the TSNR Group and established at the Uniformed Services University of the Health Sciences. In 2000, the Council for the Advancement of Nursing Science (CANS) created the research policy and facilitation arm of the American Academy of Nursing.

FAYE G. ABDELLAH

HIV Risk Behavior

By the end of 2003, an estimated 40 million people throughout the world were living with HIV/AIDS (United Nations Program on AIDS/HIV [UNAIDS], 2004a). With the highest incidence rate in any one single year since the commencement of the pandemic, 5 million people worldwide become newly HIV infected in 2003 (UNAIDS, 2004b). This in-
creasing rate of HIV/AIDS infection is a critical public health crisis and highlights the need to continually advocate for the reduction of HIV risk behaviors. Since an effective vaccine or cure for HIV/AIDS infection has not been invented yet, developing effective intervention programs to prevent or reduce the risk of becoming HIV/AIDS infected is extremely important. Nurses, with an obligatory role in providing quality health care for all, are cooperating with other professional disciplines and contributing to the prevention of HIV/AIDS infection.

Studies to date have identified that unprotected sexual intercourse, having multiple sexual partners, and injection drug uses are the main risk behaviors for HIV transmission. Sexual contact is the major exposure to the HIV transmission in most reported AIDS-infected cases. Therefore, HIV risk behaviors generally imply sexual activities in which the likelihood of having HIV infection is increased. Unsafe sexual behavior, risky sexual behavior, or sexual risk-taking behaviors are the terms commonly and widely used by scientists and researchers to represent sexual activity that increases the risk of getting sexually transmitted diseases, including HIV/AIDS infection, or becoming pregnant. Since the tragedy of the HIV/AIDS epidemic is spreading gravely, these terms in most studies specifically refer to HIV/AIDS-related sexual behavior.

Many psychosocial, biological, and sociologic circumstances or cofactors have been recognized as impacting the likelihood of HIV risks as well. The personal factors, including age, gender, race, developmental stage, early age of initiation of intercourse, HIV/AIDS-related sexual knowledge, sexual identity, self-esteem, self-efficacy, alcohol uses, and the use of illicit drugs, are associated with HIV infection-related risks. Interpersonal factors such as discussing safe sex with sexual partners and asking sexual partners about his/her sexual history may also be correlated with reduced risk of HIV infection. Environmental factors, such as social economic status, peer, school, family, and gender role, cultural norms, religious beliefs, and social isolation, were also found to influence the likelihood of becoming HIV infected.

Many behavioral contributors that increase or decrease the risk of HIV infection have been explored and identified; however, the contextual risk factors and their casual relationships with HIV risk behaviors are still not well understood. This limited understanding is an obstacle for developing effective interventions to prevent or reduce HIV risk–associated behaviors.

Several health behavior theories, such as Social Cognitive Theory (Bandura, 1994), Health Belief Model (Rosenstock, 1974), and the Theory of Reasoned Action (Fishbein & Ajzen, 1975), have suggested possible mechanisms and been popularly employed in the understanding and prevention of HIV-related risk behaviors. Most of the cognitive-behavioral interventions that stem from these theories report effectiveness in reducing risk of HIV infection. Strong evidences have shown that human’s cognitive functions, such as self-efficacy, uniquely contribute to the rationale of the safer sexual behaviors, and especially in the domain of condom use. For example, a cross-sectional survey tested the social cognitive-based model for condom use in a randomly selected sample of 1,380 participants with ages 18 to 25 years who were single and reported initiation of sexual intercourse (DiLorio, Dudley, Soet, Watkins, & Maibach, 2001). Self-efficacy was found to be directly related to condom-use behaviors and indirectly through its effect on outcome expectancies.

Thousands of experts have contributed to research in this field since the beginning of the HIV epidemic. Research related to HIV risk behaviors has significantly moved toward interventional studies. Ongoing research is also being conducted on the contextual factors that increase HIV risk behaviors. Successful programs for reducing HIV risk-related sexual behaviors are targeted toward different populations (e.g., based on race/ethnicity, sexual orientation, drug use).

When examining the effectiveness of an intervention, measurement issues regarding the indications of the HIV risk behaviors are
especially important. Because of its complex nature, HIV risk behaviors are measured variously by researchers in terms of content and form. In most of the existing correlational studies, HIV risk behaviors were measured using “relative frequency” data collected through Likert scales or “count data” which provided the accurate number of behavioral events used in interventional studies (2003). The “condom use” measure is the most frequently used indicator for HIV risk behaviors in many related behavioral studies. Many interventional programs also focus on improving the constant condom use. Besides the single item or several questions asked to measure risk behaviors, a small number of questionnaires for measuring HIV risk-related sexual behaviors are also available, such as the Safe Sex Behavior Questionnaire (SSBQ) (Dilorio et al., 1992).

Research is urgently needed to involve women and young people, especially adolescents, because these groups have increasingly high HIV risks (UNAIDS, 2004b). It is important to track emerging behavioral risks to identify the settings, subpopulations, or areas at particular risk for HIV infection so that preventive interventions can take these factors into consideration. For example, drug users, men who have sex with men, homeless people, HIV-positive individuals, and people affected with psychiatric disorders have diverse potential risks and disparate abilities to reduce their HIV risk-related behaviors. Moreover, intervening factors of HIV risk behaviors, such as culture, race, age, and gender among the target populations as mentioned earlier in this section, should be identified and considered in order to design effective HIV prevention programs.

To understand and evaluate the maintenance of behavior change for reducing the risk of HIV infection, longitudinal and multivariate studies are necessary to detect causal relationships and the changing patterns of HIV risk behaviors. Moreover, methodological issues, including criterion measures, validity of self-report risk behaviors, comparability and generalizability of studies, need special consideration. Future nursing studies in this field are encouraged to include biological markers that can bolster the validity of the studies, because risk behaviors and factors are complex and not easily measured. It is expected that future studies on the effectiveness of prevention programs and change of HIV risk behaviors utilize randomized controlled trial designs, as these are the most powerful designs for intervention studies. Meta-analysis research that integrates the results from various individual HIV risk-behavioral studies is also needed to provide multi-perspective views for future direction of nursing practice. Developing a specific HIV risk-behavioral reduction theory from the nursing perspective may be useful and efficacious for nurses to apply to the reduction of HIV risk behaviors.

Effective interventions that prevent or reduce HIV risk behaviors must be disseminated to successfully contain the HIV/AIDS epidemic. Bridges between research, practice, and policy, as well as with other disciplines, must be built. This includes releasing research findings to the public and translating them into community-based practices.

Yi-Hui Lee

HIV Symptom Management and Quality of Life

Since the advent of highly active antiretroviral therapy, persons with human immunodeficiency virus (HIV) are generally living longer. Viral loads have diminished to undetectable levels, CD4+ cell counts have increased, and opportunistic infections have become more manageable. However, persons with HIV frequently reported increased medical and disease-related symptomatology (Kirksey et al., 2002). Therefore, client-initiated or provider-directed symptom management has become an increasingly important component of care. The primary objective of nursing interventions is to enhance health-related quality of life (HRQOL) for persons with HIV.
Symptoms are primary reasons why individuals seek health care (Lee, K., & Carriere, 2003). A symptom is “any condition accompanying or resulting from a disease or physical disorder and serving as an aid in diagnosis” (Webster’s New World College Dictionary, 2001, p. 1451). Symptoms are subjective phenomena that indicate a departure from normal functioning, sensation, or appearance. These entities are a person’s perception of abnormal physical, emotional, or cognitive states. I. B. Wilson and Cleary (1995) described symptom reporting as an expression of subjective experiences that summarize and integrate data from an array of different sources. Several authors have noted that when symptom control is not achieved, quality of life can be adversely affected (Holzemer, Spicer, Wilson, Kemppainen, & Coleman, 1998; Lee, K., & Carriere).

The University of California, San Francisco, School of Nursing Symptom Management Faculty Group (1994) defined symptoms as subjective experiences based upon cognitive changes, sensation, or biopsychosocial function. The model is comprised of three interrelated dimensions: symptom experience, management strategies, and outcomes. The first category reflects an individual’s perception of a symptom. The second category, management strategies, includes self-care behaviors. And the last category, symptom outcomes, may include entities like HRQOL.

The University of California, San Francisco (UCSF) International HIV Nursing Research Network has conducted a number of multisite studies in order to identify the pervasive symptoms and self-care management strategies used by persons with HIV. Among the most frequently reported symptoms were: anxiety, depression, fatigue, and neuropathy. The following sections contain brief summaries of recent scientific studies related to each of these symptoms.

According to Kemppainen and others (2003), anxiety is one of the most prevalent symptoms experienced by persons with HIV. Dew and colleagues (1997) noted that clients with a prior history of an anxiety disorder prior to being diagnosed with HIV were at greater risk of recurrence of symptoms. Precipitating factors may include lack of partner support and inability to master or control life events. J. G. Johnson, Williams, Rabkin, Goetz, and Remien (1995) found a relationship between preexisting personality disorder and the onset of HIV-related anxiety. The researchers compared 52 HIV-negative and 110 HIV-positive men, 19% of whom had a preexisting personality disorder. Participants in the HIV-positive group displayed greater levels of anxiety than those persons in the HIV-negative group. In another study with a similar premise, Ferrando and colleagues (1998) noted a relationship among depression, substance use, and prevalence of anxiety in an ethnically-diverse sample of 267 HIV-negative and HIV-positive males. HIV-positive participants (n = 183) who continued to use illegal substances reported higher levels of emotional stress.

Neidig, Smith, and Brashers (2003) postulated that aerobic training may assist in reducing or preventing depression symptoms experienced by persons living with HIV. Sixty HIV-infected adults participated in a randomized controlled trial where clients were subjected to a 12-week aerobic exercise training program. When compared with the control group, participants in the exercise group showed significant reductions in depressive symptoms.

In another study using a telephone support group for HIV-positive persons over the age of 50 years, Nokes, Chew, and Altman (2003) determined that identifying symptoms and exploring the use of effective medications and treatments aided in reducing depression.

Fatigue is a common symptom of HIV and is associated with impaired physical functioning and poor HRQOL (Breitbart et al., 1998). Piper, Lindsey, and Dodd (1987) defined fatigue as “a subjective feeling of tiredness that is influenced by circadian rhythm. It can vary in unpleasantness, duration and intensity” (p. 19). Some researchers (Capaldini, 1998; Perkins, D. O., et al., 1995; Walker, K., McGowan, Jantos, & Anson, 1997) have postulated that there is a correlation between depression and fatigue in persons with HIV infection.
However, others (Breitbart et al., 1998; Ferrando et al., 1998) disagreed and observed that although it is associated with depression, fatigue makes a separate contribution to morbidity in HIV-infected persons.

Nicholas and colleagues (2002) stated that peripheral neuropathy is “the most common neurological complication in HIV disease” (p. 763). These investigators noted that neuropathy was the third most frequently reported symptom in a convenience sample of 422 persons living with HIV. Forty-four percent of the self-care management strategies were categorized as complementary or alternative therapies; however, there was lack of consensus about the efficacy of these interventions.

Quality of life is a perception of circumstances which is dependent upon psychological makeup. The central assumption is that individuals are the best sources of judgment about HRQOL, and it cannot be assumed that everyone will value life circumstances in the same way. Burgoyne and Saunders (2001) stated that quality-of-life assessment involves an appraisal of one’s current state against some ideal. Goal attainment, coping, decision-making assessment, and value systems are examples of predictors of HRQOL.

Kemppainen (2001) examined whether or not variables relating to sociodemographic attributes, illness severity, and psychological status predict quality of life in persons with HIV. Using a convenience sample (n = 162), the author found that the strongest predictor of decreased HRQOL scores was depression. Additionally, the investigator noted that the number of symptoms also had a profound effect on HRQOL.

In another study, Sousa, Holzemer, Henry, and Slaughter (1999) performed a secondary analysis (n = 142) to empirically test the influence of symptom status, functional status, and general health perceptions on overall HRQOL in persons living with HIV. Analysis suggested that these variables were key dimensions of HRQOL. The investigators concluded that focusing nursing interventions on decreasing symptoms or assisting the client in identifying self-care management strategies positively affects general health perceptions and enhances overall HRQOL. Douaihy and Singh (2001) noted that “physical manifestations, antiretroviral therapy, psychological well-being, social support systems, coping strategies, spiritual well-being, and psychiatric comorbidities are important predictors of QOL . . . ” (p. 1).

This review presented select articles addressing symptom identification and management as correlates to HRQOL in persons with HIV infection. Scholarly endeavors concerning quality of life have helped shape standards of care by broadening conceptualizations of outcome measures. However, additional scientific studies designed to explore the efficacy of complementary and alternative therapies, as well as public discourse on symptom management strategies related to quality-of-life enhancement, are still needed.

HIV/AIDS Care and Treatment

There has been a major shift in the nursing of persons with HIV/AIDS in resource rich countries after 1996. With the introduction of highly active antiretroviral medications targeting different phases of the host/virus interaction, HIV rapidly changed from an acute, often terminal, infection to a chronic illness with a long disease trajectory. Symptom management and identification of strategies to promote treatment adherence emerged as important foci of nursing research. In communities like the United States where medications are readily available through government-supported medication access programs, nursing research moved its area of concentration from the needs of tertiary-care patients to community-living clients and their support systems.

Goldrick, Baigis, Larsen, and Lemert (2000) reviewed the nursing research literature (1986 to 1997) and found that, although many descriptive and/or correlational studies described clinical problems experienced by
HIV positive persons, they believed that future studies should focus more on clinical interventions. The Delphi technique was used with expert members of the Association of Nurses in AIDS Care (Sowell, 2000) to identify HIV/AIDS research priorities into the 21st century. Five categories were identified: (a) HIV community-level education and prevention, (b) development of more tolerable drugs, (c) prevention focusing on individual or specific group behavior, (d) vaccine development, and (e) development of new and more effective drugs. Hare (2003) identified the six major categories of National Institute of Nursing Research funded research as: (a) biobehavioral and sociocultural research in HIV prevention and intervention, (b) risk reduction, (c) interventions to improve adherence to drug regimens, (d) end-of-life care, (e) symptoms, and (f) shifting trends including informal caregiving.

Symptoms can emerge from the disease pathology, treatment strategies, and comorbidities. Nurse researchers have examined individual symptoms such as diarrhea (Anastasi & McMahon, 2003), but through descriptive studies that used instruments such as the SSC-HIV (rev) (Holzemer, Hudson, Kirksey, Hamilton, & Bakken, 2001), it was found that HIV positive persons usually report more than one symptom. The UCSF International HIV/AIDS Nursing Research Network identified six commonly reported symptoms: anxiety, depression, diarrhea, fatigue, nausea, and neuropathy. Identification of self-care symptom management strategies were described for anxiety and fear (Kempainen et al., 2002), neuropathy (Nicholas et al., 2002), and fatigue (Corless et al., 2002).

In order to suppress the HIV viral load, adherence with prescribed medications must be almost perfect. Research with chronically ill populations has demonstrated medication adherence rates as low as 30%. Therefore, nurse researchers have developed many different protocols to examine strategies that promote treatment adherence and informed decision making since incomplete viral suppression cannot only harm the infected person but promote viral mutation and resistance. Other interventions tested by nurse researchers have focused on health promotion behaviors such as regular aerobic exercise (Baigis et al., 2002).

The two major routes of HIV transmission are sexual and sharing blood products often, through injection drug use. Populations living with HIV/AIDS vary vastly in ethnicity, socioeconomic, and educational status. Physical comorbidities such as hepatitis, especially hepatitis C, must also be considered. Differences must be addressed in the development of intervention protocols. Recruitment issues, especially the use of incentives, must be carefully considered to avoid situations where the incentive becomes such an important benefit that the potential study participant minimizes the risk. Retention is a major issue when the study population is not in stable housing and does not have regular access to phones or mailing addresses.

Depending upon the nature of the intervention, the setting may be the home, primary care setting, hospital unit, or community-based organization. Some nurse researchers have conceptualized their interventions using principles of models from other disciplines, such as the Stages of Change model, while others used nursing theorists such as the Personalized Nursing LIGHT model based on Martha Roger’s science of nursing (Anderson et al., 2003). Many of the intervention studies require multiple points of contact over time, which can be difficult to achieve in a highly mobile, resource-poor population. Findings emerging from these behavioral intervention studies may seem disappointing since there is often not a significant statistical improvement in the outcome variable after the intervention. This lack of significant findings may be due more to the lack of sensitivity in the instruments being used than in the effectiveness of the intervention. Nursing interventions are usually noninvasive and care is used to avoid harm. Rather than being discouraged by a lack of significant improvement, nurse researchers are using these findings to refine their interventions and choose more
sensitive instruments to measure change over a relatively short period of time.

Kathleen M. Nokes

Home Care Technologies

The Office of Technology Assessment, in a 1987 memorandum to the U.S. Congress, described a technology-dependent person as one who needs both ongoing nursing care and a medical device to compensate for loss of a vital body function. Home care technologies include mechanical ventilation; apnea detection monitoring; oxygen assist; continuous positive airway pressure (CPAP); nutrition or hydration via central venous infusion; hemodialysis and peritoneal dialysis’ spinal infusion for pain; infusion for chemotherapy, insulin, or antibiotics; automatic internal defibrillation; and other systems that avert death or further disability. With home care technology a family member provides nursing care, makes complex decisions, and learns skills in managing machines without inadvertently causing harm. Studies verify the additive length, quality of life, and cost-effective outcomes from use of various home care technologies (Smith, O. E., 1995).

A common requirement for placing complex technological equipment in the home is that a competent and willing caregiver is available to manage the equipment before treatment (such as home parenteral nutrition therapy) will be authorized (Ireton-Jones, 1998; Steiger & Ireton-Jones, 2001). Problems to be studied included the impact on family caregiver quality of life (Smith, C. E., 1994), ethical decision making in use of technologies, costs of safety regulations for manufacturers, and quality control measures for home care.

Technology caregiving resembles a miniature, urgent care center where families provide complex, direct patient care, maintain equipment and supply inventories, obtain needed home services, negotiate for reimbursement, and manage caregiver problems (Cohen, 2003; Noddings, 1994). Nursing research has contributed to study findings in several areas. C. E. Smith (1995, 1996) has a series of studies on families, caregivers, and patients dependent on technology for lifelong survival (Smith et al., 2002). The ethical issues in technological home care were summarized and research questions posed in a Hastings Center report (Arras, 1995). Family members reported being ill-prepared for technology caregiving (McNeal, 2000; Scott, L. O., 2001) and little has been done to support caregivers with their long-term daily technology care (Gorski, 1995).

Research with home care technologies should be systems-oriented on a variety of levels: machine reliability and safety, compensated physiological systems, family caregiving, community support, health care providers, and third-party payers’ reimbursement. The most extensive research has been at the machine level, where manufacturers’ studies of the mechanical system has led to Food and Drug Administration’s (FDA) approval for clinical trials conducted by nurses. Government regulation also has called for research on the manuals accompanying devices to determine readability and effectiveness of instructions for laypersons. In 1996, the National Academy of Science presented a report to Congress from manufacturers, regulators, health professionals, families, and patients regarding findings from research on safety and issues of home technologies and family care. Problems to be studied included the impact of family caregiver quality of life (Smith, 1996), ethical decision making in use of technologies, costs of safety regulations for manufacturers, and quality control measures for home care.

Major conclusions from research are that home care technologies enhance and extend quality of life for those who would otherwise succumb to illness, frailty, or disability. Further, family members are very capable and desirous of home care for their technology-dependent loved one. Direct physical care and indirect costs (reduced income, innumerable expenses, and transportation fees) are shifted
to the family (Gaskamp, 2004) and evidence of emotional and physical strain occurs in family caregivers. Delivery of technology services in home care is costly and uncoordinated, although cost-savings and quality improvements occurred when models of comprehensive care were followed. In some communities and states and in some populations of patients (e.g., ventilator-dependent), coordinated services do exist (Naylor et al., 2004).

Future directions for research include the need for continued study of informatics that can support safe, optimal technology care. A variation of the word ‘technology’ is technogenesis, which is used in educational technology where health care students, practitioners, and faculty nurture new technologies while preserving safety equipment. For instance, Healthy People 2010 goals for supporting those persons requiring restorative technology devices (ANA, 2002) and the Library of Medicine Quality Chasm report have a goal for safe use of infusion pumps. Effective interventions (such as step-by-step algorithms, videoscene illustrations of equipment assembly, use, cleaning, and trouble shooting) delivered over modern informatics technology will achieve the Picker Institutes’ 1998 Health Care Quality Improvement goal from the patient’s perspective of “establishing access to information to overcome the discontinuity between inpatient and home care setting” (Picker Institutes, 2005). Effectiveness of the informatics interventions themselves and the technology devices must be tested.

Study of interventions for technology home care in culturally diverse populations is still needed (Smith, 1994). In addition, policy, ethical, professional, and interdisciplinary areas of authority issues should be studied to reduce duplication and enhance resource availability. Predicting cost and outcomes of care should be compared to patients’ and families’ desired quality of life. Consumer demand and technological advances will continue, one hopes, with nursing research verifying theoretical frameworks that guide effective home technology.

Carol E. Smith
Helen A. Schaag

Home Health Care Classification (HHCC) System

The Home Health Care Classification (HHCC) system is a decision-support system designed to assess, document, and code home health care, using two interrelated terminologies. Its documentation method tracks home health care over time, across settings, and geographical locations, whereas the terminologies are used to code and classify the care. The HHCC system is based on a conceptual framework using the nursing process to assess, document, and evaluate a patient holistically.

The HHCC system was developed by Saba and colleagues at Georgetown University School of Nursing, Washington, DC. It was developed from the Home Care Project research study (1988–1991) funded by the Health Care Financing Administration (HCFA; Cooperative Agreement No. 17009 8983/3) “to develop a method to assess and classify home health Medicare patients in order to predict their need for nursing and other home care services as well as measure their outcomes of care.” A national sample of 646 home health agencies (HHAs) randomly stratified by size, type of ownership, and geographic location participated in the study. The HHAs collected retrospective data on 8,961 newly discharged cases for the entire episode of home health care, from admission to discharge. This landmark study, which represents the largest sample of HHA data in the United States, provided new knowledge for the home health care industry.

The Home Care Project produced several materials, including the HHCC of Nursing Diagnoses and Outcomes and the HHCC of Nursing Interventions and Actions. The HHCC terminologies were created empirically from computer processing of approximately 40,000 textual phrases representing nursing diagnoses and/or patient problems and 72,000 phrases depicting patient care services and/or actions collected on the study cases. The textual phrases were processed by computer, using keyword sorts from which
the standardized coded labels were developed. The coded labels were also grouped into 20 Care Components providing the framework for classifying, coding, and indexing the textual phrases for the two terminologies.

The HHCC terminologies are used to assess, document, and code the six steps of the nursing process, its conceptual framework for documenting nursing practice. The standards of nursing practice recommended by the American Nurses Association in 1991 comprise these six steps of nursing process, namely: assessment, diagnosis, outcome identification, planning, implementation, and evaluation.

The coding framework for the two HHCC terminologies—HHCC of Nursing Diagnoses and HHCC of Nursing Interventions is structured according to the 21 Care Components. Each is structured hierarchically and coded according to International Classification of Diseases Version 10 developed by the World Health Organization. Each term uses a five-character alphanumeric code: (a) first position: an alphabetic character for the care component; (b) second and third positions: a two-digit code for a core data element (major category) followed by a decimal point; (c) fourth position: a one-digit code for a subcategory (if needed); and (d) fifth position: a one-digit code for a modifier.

This structure facilitates the design of clinical care pathways as well as other applications that make the terminologies useful. It is also critical for the development of decision support and/or expert systems. The HHCC of Nursing Diagnoses and HHCC of Nursing Interventions have been “recognized” by the ANA as providing a valid and useful nursing language that can be used not only to classify nursing practice but also to document nursing care of patients in the electronic health record (EHR). Additionally, the two HHCC terminologies have been incorporated in the Metathesaurus developed by the National Library of Medicine for its Unified Medical Language System (UMLS), indexed in the Cumulative Index of Nursing and Allied Health Literature (CINAHL). They are registered as an HL7 language, are integrated into Logical Observations Identifiers Names and Codes (LOINC), and the Systematized Nomenclature of Human and Veterinary Medicine Combined Terminology (SNOMED CT). Further, they are translated into Dutch, Portuguese, Spanish, Finnish, Korean, and Chinese, and they are being translated into other languages. The original 20 Care Components were adapted by Ozbolt for her development of the Patient Care Data Set (PCDS).

The system provides the coding strategy and methodology for tracking clinical care for decision support, offers standardized assessment data for mapping and predicting health care resources, and provides information for quality management and evaluation of various clinical care pathways. The clinical information allows for the aggregation of data to provide meaningful cross-population comparisons as well as administrative decisions for allocating human resources. Further, the HHCC System can be used in home health, community health, ambulatory care settings as well as hospitals and long-term care settings.

The HHCC System consisting of two terminologies makes it possible not only to assess and document but also to code, index, and classify the nursing care according to the 21 Care Components. This innovative system provides the structure and coding strategy for the EHR, can identify a nursing minimum data set, and track the nursing care process across time, different settings, and geographic locations. The HHCC System facilitates the documentation of patient care electronically at the point of care instead of by the traditional paper-based method. The data once collected can be used many times, which allows for better documentation and more efficient analysis. The HHCC system is freestanding and can be integrated into any home health system and linked electronically to any system designed to collect the data required for professional and/or federal home health care reporting. It can be used to (a) improve the efficiency of assessing and documenting home health nursing care, (b) develop clinical care protocols and/or pathways, (c) provide
the strategy for evaluating quality and measuring outcomes of care, and (d) develop a method for costing patient care.

A complete description of the HHCC of Nursing Diagnoses and HHCC of Nursing Interventions, classified by the 21 Care Components including their definitions, is available on the Internet at http://www.sabacare.com

Virginia K. Saba

Home Health Systems

Home health systems are computer-based information systems designed to support care of the sick in the home. Home health systems primarily support home health and hospice programs provided by home health agencies (HHAs). Home health is more than “care in the home.” It focuses on the continuity of care from the hospital to the community, public health concepts of disease prevention and health promotion, and out-of-hospital acute illness services.

Home care is the oldest form of health care and yet the newest. Home health nursing, previously called care of the sick in the home, is one of the earliest developments in the field of public and community health. Care of the sick at home traditionally has been provided by voluntary nonprofit agencies, such as visiting nurse associations (VNAs), organized to provide out-of-hospital services (Saba & McCormick, 1996).

In 1966, with the introduction of Medicare and Medicaid legislation, home health programs emerged from hospital-based ambulatory care, health maintenance organizations, and proprietary home health agencies. The programs and providers increased in number and size. They increased faster than all other organized providers in the health care industry because Medicare primarily addressed the health care needs of the aging population. As this population grew, more health services were required, resulting in an increase of health care costs that required cost containment. As a result, health care began to shift from acute short-term hospital care to community home-based and chronic long-term care. Patients began to be discharged “sicker and quicker” and required more health care services in the home.

Home health systems were initially introduced as management information systems designed to manage the flow of information in the proper time frame and to assist in the decision-making process. The early home health systems were introduced in large visiting nurse associations and other nonprofit HHAs as billing and financial systems. They were developed for the sole purpose of improving cash flow, holding down costs, and addressing the federal regulatory needs for HHAs. They were designed to furnish the information required for payment by Medicare, Medicaid, and other third-party payers for reimbursement for services.

Home health systems were generally developed by commercial vendors who obtained the computer system hardware and developed the software to process the services data provided by the HHAs. The computer vendors owned the home health system and were responsible for maintaining and updating them. Home health computer vendors were usually contracted by the HHAs to provide billing services and financial management, without the HHAs having to develop their own system. With the introduction of the microcomputer and online communication systems, local area networks (LANs) and wide area networks (WANs) were introduced, designed to advance and enhance the home health systems. They were used to link state and local units, to share hardware and software, and to integrate data (Saba & McCormick, 1996).

Home health systems are designed not only to collect and process home health data required by the federal government and third-party payers for reimbursement of services but also for the efficient management of the HHA. They focus on billing and financial applications, such as general ledger, accounts receivable, accounts payable, billing, reimbursement management, and cash management. They also may include other manage-
ment applications, such as scheduling, patient
census, visit tracking, cost statistics, utiliza-
tion reports, accounting statements, and dis-
charge summaries.

Newer home health systems have emerged
that are designed to focus on the patient en-
counter and visit during an episode of care.
They include clinical applications used to as-
sess and document the care process, to gener-
ate care plans, and to prepare critical path-
ways or protocols that outline the critical
events. These newer systems are using the
electronic information superhighway to com-
muicate patient information for continuity
of care from hospital to the home, to the
community, and back to the hospital. The
systems also offer other applications that fo-
cus on decision support, evaluation of care,
and measurement of outcomes across set-
tings, time, and geographic locations. The
systems are considered part of the lifelong
longitudinal record containing patient-spe-
cific health-related data.

HHCC systems are being used to identify
care needs in terms of care components and
their respective nursing diagnoses and inter-
ventions and to determine resource use in
terms of nursing and other health providers.
They are being designed to document the clin-
cal care pathways and record protocols for
an entire episode of care. Further, they are
being used to determine care costs and pro-
vide a payment method for managed care or-
izations offering home health care ser-
ices.

VIRGINIA K. SABA

Homeless Health

Ongoing armed conflicts and poor economic
conditions are daily increasing the ranks of
the homeless in the world through the cre-
ation of refugees and immigrants. The level
of increase in the homeless population world-
wide can only be estimated because of the
continuous fluctuation of this population.
However, the World Health Organization as
well as nongovernmental agencies managing
the homeless around the world confirm that
there are greater numbers each year.

In the United States, the increase in the
number of homeless became a subject of lo-
cal, state, and national concern in the 1980s,
with the profile of the homeless changing
from that of an older male with alcohol addic-
tion to that of young men and women (21–39
years) who often entered homelessness ac-
companied by their young children (National
Coalition for the Homeless, 2002). In 1987
the federal government, in the Stewart B.
McKinney Act, initially enacted legislation pro-
viding limited funding for health care for the
homeless via the federally funded community
health centers.

Since the number of homeless continued
to increase, this funding was reapproved in
1994. In this act a homeless person is defined
as one who lacks a fixed, regular, and ade-
quately night-time residence; and . . . has a pri-
mary night time residency that is (a) a supervi-
sed publicly or privately operated shelter designated
to provide temporary living accommoda-
tions . . . (b) an institution that provides a
temporary residence for individuals in-
tended to be institutionalized, or (c) a public
or private place not designated for, or ordi-
narily used as, a regular sleeping accommo-
dation for human beings. This definition
does not include individuals incarcerated by
federal or state governments. (42 U.S.C. §
11302(c)

Currently the Urban Institute estimates
that in the U.S. the number of individuals
experiencing homelessness at some time
within a given year is 3.5 million, with 39%
(1.5 million) of this group being children (Ur-
ban Institute, 2000). This estimate is flawed
and minimal as it reflects only the homeless
counted by agencies servicing the homeless.
The homeless who are not included in this
estimate are those who do not seek services
from homeless shelters and reside outside, in
abandoned buildings or autos, or with rela-
tives or friends.

Homelessness and health are interrelated
in three major ways: health issues may lead
to homelessness; being homeless may predispose an individual to health threats; and homelessness can impact health by limiting one’s access to health care. Health status can easily lead to homelessness. When an individual with physical or mental illness or drug/alcohol addiction is unable to maintain employment and housing—homelessness results. Being homeless in a shelter setting exposes the individual to health threats (communicable diseases) from living in close quarters with others (primarily respiratory, gastrointestinal, and dermatological health threats) and exacerbates common health problems (colds, extremity swelling, foot lesions, etc.) due to shelter restrictions which require residents to rise early and leave the premises. Being homeless also makes access to health care more difficult since most homeless individuals do not have health insurance, and most shelters do not have on-site health care providers or access to cost-free medications. Consequently, the homeless seek care for acute episodes of illness at their peak and do not seek preventive care.

Nurses and nurse researchers around the world have been in the forefront studying the health care needs of the incoming homeless (refugees and immigrants). The U.S. nursing literature focuses primarily on the health of homeless U.S. citizens who have descended into homelessness for various reasons (eviction, substance abuse, release from prison, domestic abuse, etc.). Early research in this area was directed primarily at gathering demographic information related to the homeless, such as age, sex, reason(s) for homelessness, health care needs, etc. (Lindsey, 1995) and providing reports of the health care needs of this population from newly developed nurse-managed clinics.

Although reporting of demographic information has continued, in the last 5 years nursing research in this area has evolved in new directions. Qualitative studies to better understand the lives of the homeless and the homeless experience have been published (Rew, 2003; Huang & Menke, 2001; Morrell-Bellai, Goering, & Boydell, 2000). New research instruments have been developed and validated with various subgroups of this population, and new theoretical frameworks have been offered to better explain the phenomenon of homelessness in particular homeless subgroups (veterans, single mothers, substance abusers, domestic violence victims, adolescents, etc.).

These research studies have expanded the base of nursing knowledge through examining areas unique to this population, such as the relationship of early childhood trauma and abuse to adult homelessness; identification of the stressors and coping behaviors of individuals (adults, mothers, and children) who are homeless; identification of the personal strengths of the homeless; and identification of the meaning and value of pets for the homeless. Through these studies unique factors impacting the physical, mental, and spiritual health of subsets of the homeless have been identified and nursing interventions proposed to utilize this new knowledge in addressing their health issues. Nurse researchers have also been active in developing mechanisms to include the homeless and their nursing care needs in nursing school curricula through service learning projects, faculty-managed care centers, and clinical homeless shelter rotations (Wilk, 1999).

New research instruments have also been used in studies with the homeless. Some have been adapted and validated for use with the general homeless population and others developed and validated specifically for use with subgroups of this population, such as homeless sheltered women (Hogenmiller, 2004).

In the future, nursing research related to the health of the homeless will expand on current new directions to include: (a) identification of how to incorporate preventive health activities for individuals in the homeless state, (b) empowering the homeless to become competent health care consumers, (c) identification of the unique elements and health care needs of second-generation homeless, (d) identification of a continuum of health care strategies for individuals with recurrent homeless episodes, and (e) development of cost-analyses and cost sharing mod-
els with other health care institutions to pro-
provide needed health care that is cost effective.

Mary J. McNamee

Homelessness

The phenomenon of homelessness is multi-
dimensional with macro (health policy), meso
(health care systems), and micro (individual)
structural mechanisms. Homelessness is not
a random event that occurs to families and
individuals outside the context of their lives
and personal history. Epidemiological medi-
cine and social researchers continue to amass
a body of literature whose focus is the identi-
fication and description of individual risk fac-
tors that are correlated with homelessness.
These studies have documented the rates of
mental illness, substance abuse, experiences
of childhood physical and sexual violence,
and experiences of abuse and neglect (Bau-
man, 1993). This work has promoted the hu-
manization of homeless people through its
descriptive distinctions between the various
subgroups within this population. However,
 focusing on individual-level risk factors, in
describing who is at risk for becoming or
remaining homeless is only part of the pic-
ture.

Contemporary analyses have looked at the
interaction of individual and structural fac-
tors that contribute to homelessness. This ap-
proach continues to be informed by a simple,
sequential causal relationship. What needs to
be considered at this point in time is a model
that stresses the myriad ways in which factors
on the macro, meso, and micro levels interact
in the formation of various pathways into
homelessness. Researchers have pointed out
that structural factors are heightened when
there are fewer housing subsidies and the gap
between median rents and median income is
relatively wide. These structural factors in
conjunction with individual factors such as
gender, race, history of childhood or adult
abuse, substance abuse, and the level of social
support, contribute to a complex interplay
exerting a dominant effect on homelessness
(Ringwalt, Greene, Robertson, & Mc-

The life of a homeless person holds more
uncertainty than its poverty. Homeless peo-
ple are marginalized within the marginaliza-
tion of poverty (Hall, J. M., Stevens, & Mel-
eis, 1994). There are more labels for homeless
people than for segments of mainstream
America. There is fringe homeless, long-term
homeless, temporary homeless, emergency
homeless, visibly homeless, and invisibly
homeless. Within all of these categories there
are different groups of homeless: single
women never married without children, sin-
gle women who are pregnant and under-age,
divorced women with children, single unmar-
rred women with children, single men, di-
vorced men with children, divorced men
without children, families with children, run-
aways (minor children), adolescents, throw-
aways (children whose parents have told
them to leave home and never return), lesbian
and gay youth, transgender youth and adults,
elderly, disabled, handicapped, veterans
homeless, impoverished, immigrants, and il-
legal aliens. In addition to the aforemen-
tioned categories, there are homeless who
have been evicted or those who are addicted
to substances; there are homeless who are
mentally ill; those who are homeless because
domestic violence and/or abusive family
situations; and those who are homeless be-
cause of release from incarceration without
transitional support mechanisms in place.
When considering all of the above categories
of homelessness, how then does a generally
accepted definition of “homeless” result? The
National Coalition for the Homeless (2002)
reports a definition according to the Stewart
B. McKinney Act, 42 U.S.C. § 11301, et
seq. (1994),

...a person is considered homeless who
"lacks a fixed, regular, and adequate night-
time residence, and has a primary nighttime
residency that is: (a) a supervised publicly
or privately operated shelter designed to
provide temporary living accommoda-
tions ... (b) an institution that provides a
temporary residence for individuals in-
tended to be institutionalized, or (c) a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.” 42 U.S.C. § 11302(a) The term “homeless individual’ does not include any individual imprisoned or otherwise detained pursuant to an Act of Congress or a state law.” 42 U.S.C. § 11302(c).

People experiencing homelessness in rural areas are less likely to live on the street or in shelters, and more likely to be “couch surfing,” living with relatives or friends in overcrowded or substandard housing. Although homeless people are heterogeneous, while experiencing homelessness they do have certain shared basic biopsychosocial needs, such as affordable housing, adequate incomes, mental and physical health care, and possible substance abuse treatment. All of these needs must be met to prevent and end homelessness.

An ongoing dilemma is estimating how many people are homeless. There are several national estimates, many of which are based on dated information. No one estimate is a definitive representation of an accurate count but only the best approximation. In 2000, the Urban Institute found that there were approximately 3.5 million people, 1.35 million of them children, who probably have or will experience homelessness in any given year (O'Sullivan, 2003).

Baumann (1993) reported that the research on homelessness could be divided into three levels of analysis. The first focus was on the individual with numerous biopsychosocial issues, disaffiliated, disabled, mentally ill and addicted, and living in a shelter. The second level focused on homelessness in the context of the person’s environment and the third level of inquiry defined homelessness as economic dislocation related to housing shortages. A significant amount of research focused on specific homeless populations such as those with mental illnesses and disaffiliated by society (McCarthy, D., Argeriou, Huebner, & Lubran, 1991).

Within the rise of the trajectory into homelessness there is a rapidly growing increase in the number of homeless elders. This can be attributed to their vulnerability to poverty and undertreated mental illness, accelerating a course of nursing home placement and/or early death. Women have become a major segment of the homeless population, with access to health care a major issue. Lim and colleagues (2001) conducted a study interviewing 974 homeless women in 78 homeless shelters and soup lines in Los Angeles County. Using multivariate analyses, the key enabling factors associated with improved health care access were having health insurance and a regular source of health care.

Families are the fastest-growing segment of the homeless population representing diverse backgrounds. Most are female-headed single-parent households with mounting incidences of violence, abuse, and neglect. Numerous researchers reported the intense stress and adverse effects that homelessness has on a child’s development, health, behavior, and academic success.

Research pertaining to homeless adolescents incorporated biopsychosocial, cultural, and spiritual health problems in addition to the homeless adolescent’s propensity for engaging in delinquent or maladaptive social and health behaviors. Concepts such as risk, resiliency, and connectedness were found to be critical for survival, supported by the creation of peer communities or street families (Ensign & Gittelsohn, 1998; Jezewski, 1995; O'Sullivan, 2003; Rew, Taylor-Seehafter, Thomas, & Yockey, 2001).

Nursing research, education, and practice have philosophical foundations in advocating and facilitating health care for marginalized and vulnerable populations. In light of the increasing number of groups of homeless people and the known biopsychosocial outcomes of homelessness, intervention research is needed not only to prevent the trajectory of homelessness but also to develop programs and educate health care providers to the specific concerns of the homeless. Nursing re-
search and advocacy as a course of action is essential on the macro, meso, and micro levels.

JOANNE O'SULLIVAN

**Homelessness and Related Mood Disorders**

The causes of homelessness are complex, and mental illness and related mood disorders add additional layers of difficulties. Approximately 25% of the homeless population suffers from some serious mental illness (Kusmer, 2002). Many homeless suffer from common mental illnesses such as depression, psychotic disorders, substance abuse, and personality disorders. In addition, the population of homeless is very diverse including all ethnic groups, usually ranging in age between 30 to 50 years of age, unmarried, unemployed, with the largest segment of the population being women (Martens, 2002).

Two growing trends are increasingly responsible for the rise in homelessness over the past 20 years: the growing shortage of affordable rental housing and a simultaneous increase in poverty (National Coalition for Homeless, 2005). In 1998, the U.S. Conference of Mayor’s survey of homelessness in 30 cities found that children under the age of 18 years accounted for 25% of the urban homeless population. This same study found that unaccompanied minors comprised 3% of the urban homeless. Most studies of the homeless show that single adults are more likely to be male and comprise 45%, while 14% are single women (U.S. Conference of Mayors, 1998). Families with children are among the fastest-growing segments of the homeless population representing approximately 40% of people who become homeless (Shinn & Weitzman, 1996).

The homeless population varies demographically according to location. The U.S. Conference of Mayors (1998) found that 49% are African Americans, 32% Caucasian American, 12% Hispanic, 4% Native American, and 3% Asian American. Approximately 22% of the homeless population left their last place of residence because of domestic violence (Homes for the Homeless, 1998).

The homeless population commonly identified the usual signs of mood disorders such as: ongoing sadness, anxiety, lack of energy, loss of interest in ordinary activities, sleep problems, excessive weight loss or gain, physical aches and pains, difficulty concentrating, hopelessness, and thoughts of suicide and death (McMurray-Avila, 1997). One of the identified mood disorders, depression, is the most treatable of all mental illnesses. About 60%–80% of depressed people can be successfully treated outside the hospital with psychotherapy alone or with specific drugs. Unfortunately, most drug therapies, if needed, take at least 6 to 19 weeks before there are real signs of improvement. There is a reluctance to receive drug treatment due to side effects of the drugs (McMurray-Avila) and the continuing stigma of mental illness in our society.

Advocacy is critical to ending homelessness. Advocacy means working with the homeless to bring about positive changes in policies and programs on the local, state, and federal levels. Breaking the cycle of homelessness and related mood disorders also requires eliminating some of the obstacles to receiving medical care that the homeless face. Obstacles for the homeless include: a lack of awareness of services available, lack of financial resources and health insurance, language or cultural barriers, poor attitudes of some providers of services, lack of transportation, difficulty scheduling and keeping appointments, fear and distrust of institutions, and fragmented community services (Kusmer, 2002).

On the bright side, organizations which offer information and assistance with depression and treatment include: The National Institute of Mental Health Depression Awareness, Recognition, and Treatment Program (2003); the National Depressive and Manic-
Depressive Association (2003); the National Alliance for the Mentally Ill (2003) and its branch organizations available in each state; and the National Mental Health Association (2003) which publishes information on a variety of mental health issues. In addition, the President’s New Freedom Commission on Mental Health (2003) clearly identified goals needed to transform mental health care in the United States, which in turn should decrease the number of homeless with mental illness when implemented.

There is a paucity of nursing research linking the role that professional nurses play as advocates in improving the care for homeless with mental illness and related mood disorders. Because primary health care for the homeless population is often provided by nurses, there is an excellent nursing opportunity to initiate helpful research in this area as well as assist those with mental illness to get care so that they may function at a higher level in our society.

Interventions are those successful actions taken to attempt to break the cycle of homelessness. Project Achieve (www.homelessness.net, 2003) attacked the cycle of homelessness for families and individuals with information resources described on their web site. This web site lists access to social services and emergency shelters to meet basic needs, services to prepare individuals for successful independent living, and case-management services sites to provide counseling, assistance with employment, and housing placement. This kind of web site assistance could be provided regionally throughout the country, educating health professionals and others who lack the knowledge of available resources. Another valuable resource is a listing of available grant money on this web site that can be used to develop additional programs to better meet the needs of the homeless.

The strengthening of the family unit of individuals with chronic mental illness is an important need revealed by community-based case management programs. This was a longitudinal study of family support among homeless mentally ill in community-based housing programs (Wood, P., Harbert, Hough, & Hotstetter, 1998). This study was one of the first to look at the strength of homeless family relationships over time. As contact with family members increased, so did their mental health as did greater satisfaction in their relationships and housing.

The most useful strategies for professionals working with homeless mentally ill individuals and families include: setting a tone of respect using observational, listening, and interviewing skills that quickly identify problems; locating existing resources; making timely and appropriate referrals; and functioning as an advocate when needed (Williams, 1994).

There has been a slow increase in research targeting the problems and needs of the homeless over the past decade. However, in the field of nursing there continues to be a paucity of research related to the important roles that professional nurses can play and the interventions they could use to provide care for the homeless chronically mentally ill. Research is needed on the nature of the relationship between homelessness and related mental disorders such as depression and related mood disorders. The etiology of homelessness needs studies which include demographics comparing national, cultural, psychosocial, genetic, and neurobiological determinants of specific homeless populations. Other studies might explore the impact of urban versus rural environments on person vulnerable to homelessness. Both qualitative and quantitative nursing research cojoined with the research done by other disciplines is essential to clearly document the important role and interventions already used in practice by the professional nurse in providing care to the mentally ill individuals and their families.

Alice R. Kempe

Hospice

Hospice research in the United States began with studies of the differences between hospice care and care received in traditional set-
tions for the terminally ill. Although these studies examined the impact of care provided by hospice, largely nursing care, such studies were not nursing research. In Canada, Mary Vachon, a U.S.-trained nurse, was invited by the palliative care team at the Royal Victoria Hospital in Montreal, Canada, to investigate stress in the caregivers who composed the palliative care team. Other researchers examined pain pathways, medications for pain, and the impact of music therapy. In England, Dame Cicely Saunders, trained as a physician, social worker, and nurse, and others examined the impact of medications for symptom relief. These early studies had as their focus the improvement of care of the dying and, in the United States, the evaluation of whether hospice care improved such care and was fiscally sound so as to be worthy of a new benefit to fund such care. These studies were conducted by researchers from a number of disciplines.

Nursing research about hospice has been conducted using a variety of methodological approaches including qualitative ones: ethnography, observations, semi-structured interviews, and interviews; and quantitative ones: quasi-experimental, questionnaires/surveys, and audit; as well as a combination of methods. Research about hospice covers an array of topics. Topics include organizational methodologies, demographic data, social support, physiological, psychosocial, and spiritual issues, self-care, how patients spend their time, grief, bereavement, studies of nurses and their knowledge, and the impact of hospice care. Some of these topics use hospice for a setting for research but are not about hospice per se. Topics for such studies include an examination of cancer pain in home hospice patients, a comparison of nurses’ knowledge about AIDS by practice setting, training, and educational programs where the focus is the program and not the hospice patients and nurses, and the grief experience of older women. In this case, the husbands had received hospice care but that was not the focus of the study. Indeed the researcher suggested that a future study might compare the experience of women whose husbands had received such care and those who had not (Jacob, 1996). A similar study in Finland examined the adjustment of relatives after the death of a hospice patient. Again the focus was on the adjustment and not the differential impact of the hospice patient on such adjustment.

In an attempt to validate the impact of a hospice palliative-care unit on perceived family satisfaction, and to examine the demographics of patients, Kellar, Martinez, Finis, Bolgar, and von Gunten (1996) surveyed 240 families of patients of the program. The most frequent response to an opened-ended question about the advantage of the program was the professional nursing care. Few remarks were made about disadvantages and these had to do with parking-facility expenses, the distance families had to travel, and the potential for patient transfer due to the facility’s designation as an acute-care facility. Of the 92 eligible surveys returned, the researchers found that 88% (81/92) considered the hospice to be very helpful to the patient, 9% (8/92) found the program to be helpful, and 1% (1/92) were neutral. This type of study is representative of a host of studies conducted by hospice programs to assess their audience and the satisfaction with the program.

Hospice referral remains crucial to the viability of such programs. While interest is usually expressed in the attitudes of physicians, Schim, Jackson, Seely, Gruinow, and Baker (2000) examined the attitudes of home care nurses to hospice referral. Attitudes of 160 nurses were assessed with a 15 item survey. Surveys were completed by 75 nurses for a response rate of 46.9%. Home care nurses saw little difference between home care and hospice services. Many (42.6%) of the respondents thought insurance with a hospice benefit was necessary for referral. These and other misperceptions underscored the importance of home care nurses understanding the requirements and components of hospice care.

The importance of attitudes as well as knowledge was underscored by a study investigating the factors that increased the like-
likelihood that nurses would discuss terminal illness care and hospice care with patients and families. Cramer, McCorkle, Cherlin, Johnson-Hurzeler, and Bradley (2003) found that prior experience with hospice, greater knowledge, and religiosity, as well as greater comfort in initiating such discussions, were related to their initiation by nurses.

Another example of program-related research is a study on patient-focused menu planning (Fairtlough & Closs, 1996). Over a 4-week period, 108 interviews were conducted related to specific meals. Foods not liked included those difficult to swallow, tough or fried foods, or those with bones. Patients indicated they wanted seafood including salmon and prawns, beef, Yorkshire puddings, yoghurt, eggs, fruit juices, and beer. Three major comments concerned the size of the portions (too large), foods not the right temperature (not hot enough), and the time of food service (preferred later in the day). This study, although used to help nurses understand the research process, had an impact on patient care in the facility where the research was conducted. Although not commented on by the authors, it would be helpful in future research if a larger sample of patients were included in the study where closeness to death was taken into account in examining food preferences of hospice care recipients.

The needs of family caregivers also have been of concern to hospice providers. V. Harrington, Lackey, and Gates (1996) studied the needs of caregivers of both hospice and clinic patients. Results indicated that the top information need required by caregivers of clinic patients was for honest and updated information and specifically information regarding treatment side effects. In contrast, the information needs of hospice caregivers concerned the symptoms to be expected. These represent the differences in the point in the illness trajectory of the two sets of patients. Spiritual needs were the second most frequently noted for both groups. Personal needs included the need for adequate rest for both groups of family caregivers, but these were not considered to be as important by the family caregivers as the needs for care of the patient. The authors recommend a longitudinal study on this subject.

The congruence between patient and caregiver reports of symptom intensity was examined by McMillan and Moody (2003). The symptom intensity of pain, dyspnea, and constipation were evaluated by both patients and their family caregivers. Symptom intensity of all three symptoms were significantly overestimated by caregivers (p = .000). This overestimation is the basis upon which hospice nurses base their clinical decisions. The authors note that this study has implications for the education of hospice family caregivers.

Perceptions of the intensity of symptoms by nurses might be expected to be closer to those of their patients than was true for family caregivers. In a study by Rhodes, McDaniel, and Matthews (1998), 53 hospice patients, mean age 69 years, were queried about their symptom experience with the Adapted Symptom Distress Scale Form 2 (ASDS-2). The nurses were also questioned about their patients’ symptom experience. Like the informal caregivers, the nurses in this study overestimated the symptom intensity of their patients. The authors note that this is congruent with some other findings of overestimation but conflicted with findings of underestimation, particularly with regard to perceptions of pain. Indeed, McMillan (1996) demonstrated that pain was still not well managed in cancer patients. The importance of the instrument as a reliable means of assessing symptoms resulted in the incorporation of the ASDS-2 into the clinical practice of the nurses.

Quality of life (QOL) is an important concept in health care. N. Hill (2002) examined both the measurement of QOL and how it might be improved in hospice patients. This study, like the previous one, underscored the importance of nurses understanding how the patient assessed aspects of QOL. This knowledge was a guide to the reflective practice of the nurse and assured clinically significant improvements of care for the patient.

In an exploration of the context for care, Rasmussen and Sandman (1998) investigated
Hydration and Dehydration in Older Adults

Hydration is the chemical combination of a substance with water, the addition of water to a substance or tissue (Taber’s Cyclopedia Medical Dictionary, 1997, p. 920). Water is essential to sustain all cellular function (Chernoff, 1999). The percentage of water in older adults is approximately 60%. Clinicians contend that by promoting sufficient quantity and quality of fluids, especially water, fluid balance will more likely be achieved. Dehydration is the rapid weight loss of greater than 3% of body weight (Weinberg, A. D., &
Clinical symptoms of dehydration may be absent in older adults, until the condition warrants immediate hospitalization and intravenous replacement fluids (Weinberg & Minaker). Symptoms include change in mental status, confusion, lethargy, tachycardia, and syncope. Assessing skin turgor and dry mouth, a diagnostic marker of dehydration in middle-aged adults, is unreliable for detection of dehydration in older adults because of common age-related changes. Skin turgor may already be poor because of decreased subcutaneous tissue, while dry mouth may be due to mouth-breathing or lack of oral care.

Dehydration is one of the top 10 reasons for hospitalization of older adults (Centers for Disease Control [CDC], 2002). In 1996, the hospitalization of older people with the primary diagnosis of dehydration cost $1.36 billion Medicare dollars (Burger, Kayser-Jones, & Bell, 2000). Older adults with a primary hospital admission diagnosis of dehydration are three times more likely to die within 30 days of admission compared to those with a primary admission diagnosis of a hip fracture (CDC). Managing hydration status to increase oral fluid intake in older people may reduce the number of hospitalizations and deaths associated with dehydration (Burger, Kayser-Jones, & Bell).

The prevalence of dehydration in the nursing home is not easily tracked, but it is thought to be significantly higher than among community-dwellers because of nursing home residents’ comorbidities, polypharmacy, declining functional and cognitive status, insufficient oral fluid intake (OFI), and dependence on scarce staff and the institutional food delivery system. Estimated prevalence of dehydration among Skilled Nursing Facility (SNF) residents is 35% or higher (Weinberg & Minaker, 1995). Of those SNF residents with dehydration, mortality rates are as high as 50% (Wakefield, Mentes, Diggelmann, & Culp, 2002). Yet, in many cases, dehydration of nursing home residents is reversible and preventable.

Across all settings, older adults are at risk for insufficient hydration and for dehydration for the following major reasons:

1. Older adults sustain lower baseline TBW (total body water). Episodic illnesses such as diarrhea, nausea accompanied by vomiting, and fever result in even lower TBW. Depletion of as little as 1 to 2 liters of water can create a state of dehydration in an older adult. Infants and young children dehydrate for the same reason—lower baseline TBW. With decreased TBW, hypernatremia or hyponatremia become a potential electrolyte problem.

2. Thirst response is diminished in older adults. As TBW drops below 1 liter, older adults may not experience thirst as a prompt to drink fluids due to changes in baroreceptors, decreases in vasopressin, and antidiuretic hormone (ADH) (Phillips, P. A., et al., 1984).

3. Decreased reserve capacity, especially in renal function and creatinine clearance, and slower response to illness and stressors create a more delicate homeostatic balance. Thus, it takes a lesser body stressor to fuel a crisis in an older adult than would be necessary to similarly affect a middle-aged adult. The older adult’s ability to recover is also extended beyond that which would be expected in a middle-aged adult.

4. Older adults limit their fluid intake for convenience, especially if incontinence is present (Gaspar, 1999). For some individuals, the embarrassment of incontinence may outweigh the health benefit of drinking water or other fluids. In addition, disease states, such as diabetes or congestive heart failure, could place the older adult’s fluid balance at risk for imbalance (Weinberg & Minaker, 1995).

Preventively, evaluating OFI and laboratory values over time may be useful in detecting insufficient hydration in older adults. Older people generally fail to drink sufficient amounts of fluids. The recommended older...
Hypertension

The term applied to sustained and elevated levels of systolic and/or diastolic blood pressure. The exact level at which hypertension poses a health risk has been arbitrarily and continually redefined; however, the importance of hypertension is based on a rational association between sustained, elevated levels of arterial pressure and the probability of increased risk for morbidity and mortality.
mortality from cardiovascular disease. The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure defined hypertension as systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg or taking antihypertensive medication (Chobanian et al., 2003). The committee classified blood pressure into three categories and introduced the prehypertensive category for use in medical diagnosis, evaluation, and treatment (see Table 1).

Sustained and elevated systolic blood pressure is now considered to be as crucial a measure as the diastolic level in evaluating the risks for cardiovascular disease. Elevated systolic blood pressure accompanied by normal diastolic levels, known as isolated systolic hypertension, is common in older populations. Primary hypertension, formerly known as essential hypertension, occurs in as many as 95% of all individuals with high blood pressure, as opposed to secondary hypertension, which is due to an identifiable and usually treatable cause (Kaplan, N. M., 1994).

Hypertension affects approximately 50 million Americans, a major portion of the U.S. adult population. In the 1999–2000 National Health and Nutrition Examination Survey (NHANES III), 33.5% of non-Hispanic Blacks, 28.9% of non-Hispanic Whites, and 20.7% of Mexican Americans had hypertension (Hajjar & Kotchen, 2003). Two thirds of hypertensive individuals were aware of their condition, and 58.4% reported being on drug therapy. Among Mexican Americans, 40.3% of the hypertensive individuals were under treatment, but only 17.7% of all Mexican-American hypertensive individuals had controlled blood pressures, compared to 28.1% and 33.4% of the non-Hispanic Black and White populations, respectively, with controlled blood pressures. Given equal access to therapy, Black Americans, who are among the most affected population group, achieve less blood pressure reductions.

Hypertension increases with age, is more common in Blacks, and is more prevalent among lower socioeconomic populations. Hypertension has a higher prevalence in men throughout young adulthood to middle age. Thereafter, the prevalence in women rises above that of men. The highest rates among women are found in non-Hispanic Black women and among men in non-Hispanic Black men.

In the 2003 report, the Joint National Committee (JNC) on Prevention, Detection, and Evaluation of High Blood Pressure amended the standards for clinical classification of adult patients with high blood pressure. The new classification (Table 1) differs in several ways from that published in 1997. A new clinical category has been added: prehypertension which is not a disease category; also there are now two instead of three stages in the hypertension category.

Hypertension seldom exists in isolation but most often occurs with other risk factors that increase the probability for cardiovascular disease. Factors commonly associated with hypertension that are nonmodifiable include low birth weight, older age, family history of high blood pressure, and history of diabetes mellitus, coronary heart disease, stroke, or end-stage renal disease. Modifiable confounders include smoking, alcohol consumption, high saturated dietary fats, excess dietary sodium, adiposity, and a sedentary lifestyle, as well as recreational and over-the-counter drugs. In addition, psychosocial and environmental factors create life stressors that may influence hypertension as well as

| TABLE 1 Classification of Blood Pressure for Adults Age 18 Years and Older |
|-----------------------------|-----------------------------|
| Category                  | Systolic (mm Hg) | Diastolic (mm Hg) |
| Normal                    | < 120            | < 80              |
| Prehypertensive           | 120–139          | 80–89             |
| Hypertension              |                 |                   |
| Stage 1                   | 140–159          | 90–99             |
| Stage 2                   | ≥ 160            | ≥ 100             |

*Source: Adapted from Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (2003)*
Hypertension care and management. Target-organ disease as a consequence of sustained, uncontrolled elevated blood pressure includes arteriosclerosis, heart failure, transient ischemic attacks (TIA), stroke, peripheral vascular disease, aneurysm, and end-stage renal disease. Currently, researchers have identified several emerging cardiovascular risk markers such as high-sensitivity C-reactive protein (Blake, Rifai, Buring, & Ridker, 2003) and homocysteine (Lim & Cassano, 2002).

Hypertension is a major independent risk factor for coronary artery disease and stroke, the first and third causes of mortality in the United States, respectively, yet its importance is not emphasized satisfactorily in research and practice. The individuals hardest to reach and at the highest risk are often not in care or are uninsured. Medical and behavioral intervention approaches lack cohesiveness and cultural relevance, therefore failing to achieve the strength of their impact as a combined intervention. Additional research is required to evaluate multidisciplinary strategies with a team approach to increase entry into care, remaining in care, and long-term compliance with prevention and treatment recommendations. Research also is needed to increase understanding of cost-benefit of interventions and the effects of self-monitoring and titration, including pharmacological vacations. Identifying markers for early detection continues to be a challenge, and research should focus on exploring biochemical and genotypic methods to define and classify the population at risk.

The ultimate goal for treatment is to prevent morbidity and mortality by the least intrusive means. The treatment regimen is determined by evaluating the severity of the blood pressure elevation, the presence of target-organ disease, and the effects of other coexisting risk factors. The inability to adhere to treatment recommendations is a major barrier in attaining and maintaining goal blood pressure levels in long-term management, evidencing the need for planned patient education programs. Traditional treatment strategies targeted to the general population lack cultural sensitivity, neglect active involvement of the patient in decision making, and fail to motivate and keep the patient in care. More individually oriented treatment methodologies that address the patients’ concerns, including their social support system, employment status, health insurance, and barriers in daily life to meeting compliance goals, are required. Nursing can provide the training, education, and support to design planned health programs to increase the efficacy of interventions and improve overall compliance.

Lifestyle modification, formerly termed nonpharmacological therapy, includes interventions targeted toward healthier lifestyles and reducing the risks for cardiovascular complications at the family, community, and population levels. Lifestyle modifications for blood pressure control include reduction in weight, adoption of the Dietary Approaches to Stop Hypertension (DASH) eating plan, adequate physical activity, dietary decreases in sodium, and moderation of alcohol consumption. Smoking, although not directly related to hypertension, is a major cardiovascular risk and should be avoided.

Nonpharmacological therapy for treatment of hypertension is an evolving strategy in line with the objectives of Healthy People 2010 (Healthy People 2010). It represents a prevention area ideally suited for nursing practice and research. Public-health prevention strategies focusing on lifestyle modification at the community and practice setting will help achieve an overall downward shift in the distribution of blood pressure levels in the general population. Interventions should target high dietary sodium, fats, alcohol, and low intake of potassium, as well as physical inactivity. Although these intervention strategies show promise in prevention of high blood pressure, societal barriers, such as the lack of satisfactory food substitutes, lack of access to care, and absence of economic resources, constrain compliance and achievement of intervention goals. Moreover, further
research should focus on patient-oriented outcomes that affect patients’ well-being such as sexual functioning, ability to sustain family and social tasks, and ability to carry out activity of daily livings.

Martha N. Hill
Susan Dale Tannenbaum
Updated by Ali Salman
Immigrant Women

Immigration is a process of movement of people from one country to another. Immigrants experience a transition that begins with preparation for immigration and includes the act of immigrating, the process of settling in, and over time, identity transformation. Throughout this transition process, individuals and families experience both euphoric and highly stressed responses. These experiences increase the vulnerability of immigrating populations to health risks. They are more likely to work at home or in family businesses that provide them with limited benefits. When employed outside the home, they often work in low-income jobs such as work in garment shops or domestic work. Women often accompany male family members in immigrating to the United States rather than obtaining their own visas. Therefore, their status is insecure, and they are more vulnerable and less likely to disclose battering, harassment, or abuse.

A nursing perspective focusing on immigrant women and their health includes research on gender and health, culturally influenced explanatory models of illness, transitions and health, and marginalization and health (Aroian, 2001; Meleis, 1995; Meleis, Lipson, Muecke, & Smith, 1998). Immigrant women’s gender relates to their ability to access and receive quality care. They are expected not only to cook, do housework, care for children, and often to contribute income but also to act as family mediators and culture brokers. Health care professionals have limited knowledge of the demands and the nature of immigrant women’s multiple roles and their health care needs, nor has research adequately uncovered the contextual conditions that influence their health-seeking strategies, the nature of their illnesses, and compliance with treatment (Anderson, J., 1991b). How immigrant women express their symptoms and what meaning they attach to health care
Encounters also determine their health outcomes. Describing their explanatory models of illness may improve provision of care and ultimately their health (Reizian & Meleis, 1987).

Conceptualization of immigration as a transition allows researchers to focus on the process, timing, and critical points in the process of becoming an American. Lipson (1993) described the traumatic experiences of Afghan refugees before leaving Afghanistan, during transit, and while settling in the United States. Knowledge of the traumatic experiences of the immigrants and refugees helped to explain their responses to the immigration transition and provided a context in which to identify their health care needs. During transitions there is loss of support and networks. In addition to these stressors, women in particular are expected to take responsibility for family health and to mediate between the demands of the new social structure and members of their families for health care, schools, and social services.

Several strategies have been developed to provide care for immigrant women. Some of the most effective models are groups that focus on women’s strengths (Meleis, Omidian, & Lipson, 1993; Shepard & Faust, 1994), the use of cultural interpreters (Jezewski, 1993), and feminist participatory models, such as group discussion of dreams to deal with psychosocial issues (Thompson, J., 1991). However, there is a need for further research to capture the transition experiences of such neglected populations as women immigrants from South America, Eastern Europe, and the Middle East, as well as studies that address issues of language, symbolic interpretation, and cultural competence in health care. In particular, there is need to develop and test nursing interventions that decrease structural barriers to health care as well as those that support culturally appropriate preventive and health-promoting behaviors (Lipson & Meleis, 1999).

Future areas for scholarship include methods for defining populations, developing culturally competent research tools, using appropriate theoretical frameworks, and uncovering the critical markers in the transition process that render immigrants more vulnerable. Developing and testing culturally competent models of care is of top priority with the increasing diversity of populations and the backlash against women and immigrants.

Araf Ibrahim Meleis
Juliene G. Lipson
Updated by Karen J. Aroian

Individual Nursing Therapy

Nursing practice is becoming increasingly complex and diverse, and many changes have been noted by authors in psychiatric mental health nursing in recent years (Jones, 2003). Increasingly, mental health services are taking place in the community rather than in inpatient settings. As a result, contact time between nurses and clients has become limited. In discussing individual nursing therapy and nursing interventions on a one-to-one basis, one must move beyond the traditional parameters of individual therapy as first described by Peplau and consider brief psychotherapy and crisis intervention, case management, and even family interventions as crucial aspects of the nurse-client relationships. Today, with the emphasis on psychobiology in the cause and treatment of mental illness, the importance and relevance of individual nursing therapy is in question (Kraus, 2000; McCabe, S., 2002; Raingruber, 2003).

The cornerstone of psychiatric mental health nursing today is the therapeutic relationship. Peplau defined the therapeutic nurse-client relationship as the interpersonal process between professional nurse and the client (Peplau, H. E., 1952). In this process the nurse needs to establish trust, strive toward mutually established goals of the relationship, and focus the movement of the interpersonal process toward growth for the client (Gelazis & Coombe-Moore, 1993). Peplau described the nurse as the basic tool or resource for the betterment of the client.

Researchers have studied various aspects of Peplau’s theory, including the phases of
the nurse-client relationship (Forchuk, 1995),
the various roles of the nurse studied by Mor-
risson (1992) and concepts and constructs
identified as important to nurses by Peplau
(O'Toole & Welt, 1989). Forchuk et al.,
(2000) studied Peplau’s theory and clarifies
many aspects of the theory, including the as-
sumptions, basic definitions, and relation-
ships between the concepts. Future research-
ers need to continue the study of Peplau’s
interpersonal paradigm, for it is a rich source
of knowledge about the therapeutic individ-
ual nurse-patient relationship and the inter-
personal process as it is used and is rele-
vant today.

Other nurse theorists based their own
ideas and frameworks on Peplau’s nurse-cli-
ent relationship theory (Orlando, 1961;
Travelbee, 1972). Theorists, such as King,
have communication and interpersonal pro-
cess as central to the theory (King, 1992).
Some have studied aspects of therapeutic pro-
cess, such as empathy (Evans, G., Wilt, Alli-
good, & O’Neil, 1998). Individual one-to-
one nurse-client relationships continue to be
highly important in psychiatric mental-health
nursing. Much of nursing, both inpatient and
outpatient, involves the nurse’s ability to en-
ge the client in interpersonal interactions.
In recent years, however, as care is more
profit-driven, the nurse-client relationship
has undergone some changes. The fact that
the client has much shorter contact with the
nurse in inpatient settings due to short hospi-
tal stays means that the phases of the nurse-
client relationship, which in the past had
more time to develop, now must solidify
within brief periods of time. Sometimes there
are only a few days available and at times
only hours for contact between nurse and
patients (Vaughn, Webster, Orahood, &
Young, 1995). The relevance of individual
nursing therapy has been called into question
by those who claim that giving the approp-
riate medication to the mentally ill person
is the most important feature of care, thereby
calling forth serious discussion of how psy-
chiatric nurse clinical specialists should use
their time (Raingruber, 2003). Complex men-
tal illness seems to require more than a medi-
cal approach with medication. The recent
success of dialectical behavioral therapy,
DBT, with patients having this disorder sug-
gests that more complex treatments are in
order which blend various paradigms in treat-
ment of mental illness (Perseius et al., 2003).

Brief therapies or short-term psychothera-
pies are time limited, have limited goals, and
generally cost less than longer forms of ther-
apy. Psychiatric nurses and particularly psy-
chiatric nurse clinical specialists are well
suited and prepared to use a brief psychother-
apy model because their education and clin-
ical experience prepares them well to use this
form of therapy (Shires & Tappan, 1992).
Brief therapy usually lasts for six to twelve
sessions, but for clients with chronic prob-
lems the sessions may be spaced over a 3
to 6-month period (Wells, R., & Gionnetti,
1990). Visits tend to be shorter and may be
from 15 to 30 minutes (Budman & Gurman,
1988). In brief therapy the therapist is usually
quite active and can use techniques such as
homework assignments to extend treatment
(Shires & Tappan). Frequently therapeutic
experiences occur in the community setting
(Budman & Gurman). Nurses are usually
knowledgeable regarding community re-
sources and may work for community-
based agencies.

The psychiatric mental-health nurse prac-
ticing in the community setting deals with
chronically mentally ill clients both in long-
term therapeutic relationships and in crisis
situations. In this setting communication
skills are even more important because trust
needs to be established in a relatively short
period of time. The nurse applying crisis in-
tervention uses her assessment skills to the
utmost and builds trust to have clients confide
important information. For example, if the
client is suicidal, trust is a highly important
element to buy time for the client so that
emergency services can be sent (Wheeler,
1993).

Another use of crisis intervention in indi-
vidual nursing therapy is by the triage nurse
in community mental-health nursing, who
frequently deals with suicidal clients or clients
who may be dangerous or threatening to oth-
ers due to exacerbation of psychiatric symptoms (Wheeler, 1993). The nurse not only must communicate therapeutically with clients, but also with distraught families. The principles of individual therapy as outlined by Peplau must therefore be expanded to include family members and clients, all of whom may be in crisis at the time of contact (Gilliss, 1991). Some work has been done in this area, but nurse researchers need to continue to systematically study how the interpersonal process can be expanded to include family and others and how this process is therapeutic.

The psychiatric mental-health nurse is part of the community mental-health system and is able to help coordinate care of clients through the use of case management. Often the criticism of the care of the chronically mentally ill in the community is that care is fragmented and uncoordinated (Anthony, W. A., Cohen, Farkas, & Cohen, 2000). Research has shown that care-management services may be available to clients in the community, but that clients rarely take advantage of such services due to lack of knowledge or other reasons (Parson, 1999). Some researchers pointed out that case management can be the key to adjusting to the community for the chronically mentally ill because it provides a link for the client to the support services he or she needs (Forchuk & Brown, 1989). Forchuk recommends that an essential component of a case-management model is the establishment of a one-to-one relationship, which can be the basis for continued long-term care in the community. Thus Peplau’s theory comes into play through its use in case management. The Peplau case-management model provides a framework for delivering nursing care and comprehensive care for the chronically mentally ill client (Forchuk & Brown).

In the demanding environment in which psychiatric mental-health nursing takes place today, the nurse must use basic skills in new applications. The individual therapy that nurses use is based on Peplau’s interpersonal framework. This theory is still relevant and can be used in various forms of individual therapy, which include brief psychotherapy, crisis intervention, and case management. All of these frequently occur in community settings. Nurse researchers need to study the therapeutic process in various settings and time frames to establish the effectiveness of the nurse’s interactions and interventions. The interpersonal framework and theory itself also would benefit from continued study and research, particularly because of the extreme emphasis today on the psychobiological aspects in the care of the mentally ill.

**Infant Injury**

Injuries are defined in two ways: (a) the physical damage to the body caused by the transfer of mechanical, chemical, or thermal energy (e.g., a broken bone, salicylate-related poisoning, or frostbite to a toe); and (b) as the event that caused the damage (e.g., motor vehicle crash, aspirin ingestion, or prolonged exposure to cold). When talking about unintentional injuries, it is still common to use the word accident as if unexpectedness or lack of intent were the primary feature of the injurious process. However, although the moment of occurrence of an injury may not be precisely known, its likelihood of occurring is usually predictable. If events are predictable, they are not called accidents; rather, the term injury is used.

It is crucial that those who study injury and collect injury data recognize that the term injury can refer both to the physical damage caused to the body and to the predictable causative event. In fact, the International Classification of Disease (ICD-10-CM) uses two separate systems to classify injuries. One is a set of physical damage codes (N-codes; e.g., humerus fracture); the other is a set of event codes (E-codes or External Cause of Injury Codes; e.g., fall on stairs). Together these two systems of classification provide a fuller picture of an injury episode than does either alone (knowing that an infant fell on stairs is important; knowing that the fall re-
sulted in head trauma provides a more complete description.

Unintentional injuries are the principal cause of death in the United States for individuals from the newborn period, 29 days, to age 44 years. For infants in particular they represent the predominant cause of nonbirth-related death. Fatal injuries are usually recorded according to the events that cause them, such as the number of deaths from motor vehicle crashes or house fires; whereas nonfatal injuries usually have been reported by physical damage groups. This is because fatality data are derived from death certificates, which classify cause of death by circumstances and facilitate E-coding. Morbidity data generally are gathered from medical records and often are derived from N-coding.

National mortality data are routinely available from death certificate reviews. These vital statistics mortality data from 2001 show the principal causes of infant (under 1 year) injury death as suffocation, 16.41 deaths/100,000; homicide, 4.07 deaths/100,000; motor vehicle, 3.45 deaths/100,000; drowning, 1.69 deaths/100,000; fire and burns, 1.24 deaths/100,000; and other, 5.63 deaths/100,000 (Centers for Disease Control, 2003). Hospital discharge data from the State of California found that for infants 0 to 2 months of age the most frequent injury cause was falls from heights, not from furniture; for 3 to 5 months, battering; for 6 to 8 months, falls from furniture; and for 9 to 11 months, nonairway foreign bodies (Agran et al., 2003).

National data are not routinely available regarding the incidence of and associated risk factors for nonfatal injuries in infants, which means that most morbidity data by type of injury event are generated only by special studies. Siegel and colleagues (1996), investigating the association between maternal age and other risk factors for infants deaths in the state of Colorado from 1986 to 1992, found that rates peaked at a maternal age of 22 years for unintentional infant injury deaths. Among the unintentional injury deaths, more mothers had inadequate education, higher proportion of low-birthweight infants, more siblings in the family, and a higher proportion of interpartum intervals or less than 2 years.

Data from studies by Jordan, Dugan, and Hardy (1993) and O'Sullivan and Schwarz (2000) documented the nonfatal injury rate specifically for infants (< 15 months) of adolescent mothers as 15.7 and 16.3 per 100 children, respectively. Falls and burns were the two leading causes of injury in both studies. Additional studies on injury rates for infants through age 18 months of life also documented falls, burns, and ingestions as the leading causes of nonfatal injuries, as shown by the work of O'Sullivan and Schwarz with infants of teenage mothers and Schwarz and coworkers (Schwarz, Grisso, Holmes et al., 1994) in an urban African-American population.

The most recent explorations of infant injuries have generally been event-specific, for instance Banever and colleagues’ description of infant hand burns caused by touching home treadmills (Banever et al., 2003); foreign body ingestions, particularly coins and batteries (Wahbeh, Wyllie, & Kay, 2002); or the large body of work on infant injuries caused by sitting in the front seat of a motor vehicle with a passenger-side air bag (Arbogast, Cornejo, Kallan, Winston, & Durbin, 2002). Suffocation in adult beds and sofas or chairs has also recently become more widely recognized as an important cause of injury to infants, with a 20-fold increase reported since 1980 (Sheers, Rutherford, & Kemp, 2003).

Injury researchers bemoan the flaws in studies of external causes in fatal injuries and the fact that existing mortality data do not give a good picture of how injuries occur. To target intervention efforts, nurses must know how injuries are occurring. These data do not exist because fatal injuries are relatively infrequent events. The few studies on injury risk factors usually use data on nonfatal and minor injuries (which are relatively more frequent) to identify risk factors for injury. Unfortunately, whether or not nonfatal and fatal injuries involved the same causative factors.
and sequence of injury is not known (Peterson & Brown, 1994, for review).

In addition to these data-specific barriers to effective injury prevention, there are others. Many injuries occur because of an interaction between environmental and behavioral risk; for example, burns from hot water could not occur if water heaters were all set at a safe temperature (below 125°F). Environmental change strategies that avoid change in behavior have been favored by injury prevention professionals (e.g., air bags in cars, sprinkler systems in buildings). For many infant injuries, the behavioral piece in injury prevention must be addressed with parents, but there is sparse information about changing parental behavior with regard to injury or most other infant health-promoting activities. Unfortunately, injury often has no meaning to families until after an injury has already affected a child. Moreover, parents can often repeatedly behave in a relatively risky fashion without injury occurring. This leads to complacency and denial of risk. In fact, as parents obtain more experience with the environment around the infant, there is evidence that their expectations of severity of injury decreases. They become more willing to take risks. This adds to the difficulty of undertaking successful behavior change with parents to improve infant safety.

To provide a framework for injury prevention strategies, Haddon and Baker (1980) described the occurrence of injuries through the interaction of three factors: an agent that can do harm, a vector or vehicle that conveys the agents, and a host. Knowledge exists on how to change the agents, vehicles, and hosts to prevent death and disability. The value of these options for nurses is that they specify the various stages in the injury process in which intervention could be considered, and they address both behavioral and environmental approaches.

At present, other than for motor vehicle injuries, where passenger restraints, drunk-driving laws, and road and automotive safety standards have been shown to reduce infant injury and death, there are few supported injury-prevention interventions for infants.

Much more work is needed by nurses and other researchers to define and evaluate injury-control strategies. In the meantime, research to understand injury etiology and better data collection systems are urgently needed.

Ann L. O'Sullivan
Donald F. Schwarz

Infection Control

The infectious process depends on the interaction between an infectious agent, a susceptible host, and the environment. Essential to this interaction is a means of transmission of the agent from an infected host to a susceptible host. This occurs through direct contact, airborne droplet transmission, and indirect contact. Airborne transmission involves the dissemination of particles suspended in air that contain infectious microorganisms. When replication of the infectious agent occurs in the tissues of the host, causing local cellular injury, secretion of toxins, and/or an antigen-antibody reaction that produces signs and symptoms, infectious disease is present. Communicable diseases are infectious diseases that may be transmitted from one person (or animal) to another. Not all infectious diseases are communicable.

Infection control occurs both in the community and within institutions. However, since 1980 increasing emphasis has been placed on hospital-acquired infections.

The CDC has long been involved in the development of guidelines for infection control programs. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) sets standards for practice and requires infection control committees to recommend and approve surveillance programs based on previous nosocomial infection statistics. In addition, the Occupational Safety and Health Administration (OSHA) has published a regulatory document titled The OSHA Bloodborne Pathogen Standard. This document requires that all employers of health care workers provide employees with
an environment safe from exposure to blood-borne pathogens (U.S. Department of Labor, 1991). The American Public Health Association has published a classification system for reporting communicable diseases that is used by state and national public health services. The National Nosocomial Infection Surveillance system collects data from a variety of hospitals nationwide. Reports of findings are published periodically.

The purpose of infection control surveillance is to establish and maintain a database that describes the endemic rates of nosocomial infections. Knowledge of endemic rates allows recognition of increased rates of nosocomial infection resulting in clusters or outbreaks. These data also can be used to prioritize infection control activities and identify trends such as shifts in prevalent pathogens or outcomes of hospital-acquired infections. The surveillance process includes definition of nosocomial infections, systematic gathering of case findings, and tabulation, analysis, interpretation, and reporting of relevant data to individuals or groups for appropriate action.

There are three major types of surveillance. Total house surveillance detects and records all nosocomial infections that occur anywhere in the hospital. It is expensive because of the time and personnel required. Priority-directed or targeted surveillance concentrates on specific areas, patient populations, or procedures, depending on the characteristics of the hospital. Problem-oriented surveillance is conducted to measure the occurrence of specific infection problems, such as outbreaks in specific areas of the hospital. Other surveillance programs may include prevalence surveys or a focus on the identification of risk factors associated with nosocomial infections.

Control of infectious diseases depends on interrupting the interaction between an infectious pathogenic agent, a susceptible person, and the characteristics of the environment. The characteristics of transmission of the organism through direct contact, airborne droplets, and indirect contact are important considerations. Nosocomial infections are iatrogenic, costly complications of hospitalization. In order of incidence, the top four nosocomial infections are urinary tract infections, pneumonia, surgical wound infections, and bacteremia. Preventive interventions for high-risk patients are the most effective measures to prevent morbidity and mortality.

GAIL A. HARKNESS

Informed Consent

Informed consent is the process by which a potential subject or a legal representative is given explanations about the purpose of the research and the risks, inconveniences, costs, potential benefits, and right to withdraw from the study without repercussions. This must occur prior to obtaining written or verbal consent for enrollment. The use of informed consent for research and the process for obtaining it have evolved over the past 50 years. The major impetus for increased attention to the issues of informed consent was a series of studies involving unethical actions on the part of researchers toward their subjects. These studies involved human rights violations in which subjects were neither informed nor had the ability to refuse participation. Highly publicized examples included experiments conducted on Nazi prisoners in concentration camps; withholding treatment for a group of poor Black men with syphilis in Tuskegee, Alabama, to determine the course of the untreated disease; and not informing elderly patients at the Jewish Chronic Disease Hospital in New York that they were injected with live cancer cells (National Commission for the Protection of Human Subjects, 1979).

The Nuremberg Code, which outlined ethical standards for research, was adopted in response to the human rights violations in Nazi prison camps. This was followed by the Declaration of Helsinki, adopted by the World Medical Assembly in 1964. In the United States the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) devel-
oped a code of ethics for the protection of human subjects, specifying guidelines for research sponsored by the federal government. The basic principles of beneficence, justice, and respect for persons were the guiding ethical principles. This was followed by federal regulations, specifying in greater detail the conditions under which humans could be used in research sponsored by the federal government. Professional organizations then issued their own guidelines. In 1975, the American Nurses Association published *Human Rights Guidelines for Nurses in Clinical and Other Research*.

Today research involving human subjects requires that, prior to giving consent, the subject or legal representative be informed of the purpose, duration, and procedures of the study; risks or discomforts; potential benefits; alternatives to participation; confidentiality; compensation; person to contact for questions; and a statement that participation is voluntary. There are special provisions when subjects are fetuses (in and ex utero), children, pregnant women, or prisoners (USDHHS, 1983).

Not all research involving humans requires informed consent. The local institutional review board (IRB) is the authority for determining the need for informed consent. Issues about informed consent debated in the literature include understandability of the consent form, research in emergency or critical care situations, genetic research, and use of blood cell line development.

Understandability of the consent form has two components: the subject’s ability to understand the information in the consent form and the reading level. The subject must be legally competent to give informed consent. Competency to give consent can be affected by the age of the potential subjects (child vs. adult); mental ability (Alzheimer’s patients or mentally retarded adults); medical condition (unconsciousness, sedated, incubated); or ability to read, speak, and understand English. The researcher has to ensure that the consent form is written at a level that can be understood by the subject.

Until the fall of 1996 the ability of researchers to conduct studies in emergency and critical care situations, when the potential subject was not able to give informed consent and the legal representative was not available, was severely limited. A change in federal regulations (USDHHS, 1996) allows the exemption from informed consent requirements for emergency research under very specific conditions: (a) the subject’s condition is life-threatening, (b) available treatments are unproved or unsatisfactory, (c) consent cannot reasonably be obtained prior to the initiation of the intervention, (d) there is the potential for direct benefit to the subject, and (e) the community is aware of the research prior to the initiation of the study.

Nursing research on informed consent primarily has addressed the issue of patient advocacy, with emphasis on the patient’s ability to understand the informed consent document. Susman, Dorn, and Fletcher (1992) investigated how much information 44 subjects, aged 7 to 20 years, retained about the research protocol in which they were enrolled. They found that over 50% of the subjects understood that they could ask questions about the research study, knew how long they would be in the study and what the benefit of the study would be, and were aware that they could withdraw at any time. However, less than 3% knew the purpose of the study, 9% knew the risks associated with the study, and 14% knew what procedures were associated with the study.

A second study focused on what subjects understood of the words used in research consent forms. Lawson and Adamson (1995) interviewed 86 adults on research protocols and found that over 80% understood the following commonly used terms: *efficacy*, *lesion*, *orally*, *benefits*, *adverse reactions*, *placebo*, *compensation*, *ineligible*, and *withdrawal of consent*. Conversely, less than 50% of the subjects understood words such as *protocol*, *open label*, and *nonsteroidal antiinflammatory drugs*.

Techniques for improving subject understanding of the research include giving a copy of the informed consent form to the subject,
viewing a videotape of the research procedure, and calling subjects after they have signed the consent to answer questions or concerns. Additional research is needed in the area of informed consent.

BARBARA S. TURNER

Instrumentation

Instrumentation is a general term for the activities involved in developing, testing, and revising measures of concepts important to nursing. The term is usually applied to these processes as they relate to psychosocial or self-report measures of attitudes and behaviors. However, instrumentation also refers to the validating of measures for physiological parameters or laboratory devices. The goal of instrumentation is to create measures that reduce error in research through consistency, accuracy, and sensitivity of measurement. For self-report instruments, consistency is analogous to reliability, and accuracy is analogous to validity. With laboratory instruments, validity is also used to describe the accuracy of the measures, but precision refers to the instrument’s consistency in measurement. Sensitivity is directly applicable to both types of measurement and refers to the instrument’s ability to finely discriminate in individual differences and changes in the concept under study. Control of measurement error is achieved by assuring that as much response variability as possible is due to the subject’s relationship to the concept under study rather than to inconsistent or systematic extraneous factors.

The term psychometrics is often used to refer to the results of testing self-report measures and to the statistics that are utilized in that examination. Self-report measures generally fall into the categories of norm-referenced and criterion-referenced. With norm-referenced instruments the goal is to obtain a spread of scores across a wide range for the purpose of discriminating between subjects. Criterion-referenced measures are constructed for the purpose of determining whether a subject has or has not achieved a predetermined set of target behaviors. Steps in instrumentation for these two categories differ; however, the majority of attitudinal and behavioral measures applicable to nursing are norm-referenced, and their construction and testing is emphasized.

Instrumentation for self-report measures involves three general phases: development, testing, and revision. Instrument development involves concept clarification, developing a theoretical definition, operationalizing the concept, and generating items. Concept analysis involves a careful review of literature with attention to consistencies and inconsistencies in the use of the concept. Concept synthesis uses clinical observations to explore the phenomenon of interest. Concept derivation consists of moving a concept from one field or discipline to another. After the concept to be measured is clarified, a theoretical definition is formulated that delineates the dimensions of the concept to be measured based on the result of concept clarification. Operationalization is the process of moving to an operational variable that is isomorphic with the theoretical definition. Item generation involves decisions about concept dimensionality and scaling methodology.

When the phenomenon of interest is a highly abstract concept, the theoretical definition will include a number of conceptual aspects. Less abstract concepts can often be indexed with items that tap only one, more finite aspect. For each aspect of the concept, items must be developed in a manner that assures homogeneity within that conceptual dimension. Thus, the instrument may have to be multidimensional or unidimensional, depending on the concept of interest. Typically, multidimensional concepts will be measured with instruments that have a subscale that relates to each dimension.

Decisions about scaling involve whether the model is meant to scale stimuli or people. Methods used for scaling stimuli are paired comparisons, constant stimuli, successive categories, and psychophysical methods. Common approaches to scaling people are cumulative (e.g., Guttman-type), differential (e.g.,
Thurstone-like), and summated (e.g., Likert-type) instruments. Nunnally (1978) provided an excellent overview of these scaling procedures. Other decisions in item generation include factors involved with instrument formatting. These factors relate to levels of measurement, scaling responses, and the appearance of the scale to the respondent.

Instrument testing for self-report measures involves two aspects. Initially, the content of the instrument is examined to assure its relationship to the theoretical definition of the concept. The procedures include estimates of whether the concept has been sufficiently indexed by the instrument’s items and whether the format is clear and promotes response consistency. Evaluation of the link between the concept and items is primarily performed by a panel of content and instrument experts. Once it is determined that the concept is adequately indexed, a second phase of testing involves the use of the instrument with a sample from the target population. This testing results in a quantitative examination of reliability and validity measures (see “Reliability” and “Validity”).

Instrument revision for self-report measures includes a critical examination of testing results and individual items. Options for items are (a) inclusion as is, (b) alteration to clarify or meet theory, and (c) elimination. Once the instrument has been revised, it must be tested again with another sample from the target population.

Instrumentation for laboratory measures involves the similar phases of development and testing. However, the development phase typically focuses on the establishment of procedures for the use of the device. Testing evaluates the precision, accuracy, and sensitivity of the device, given the procedures established. Examination of precision must include calibration of the device and evaluation for inconsistency in readings, given repetitive use. Assessment for accuracy includes not only the meeting of established standards but appraisal of appropriate theoretical specification of results to the concept of interest. Revision of procedures may be needed when results of testing do not meet established standards for precision and accuracy.

Joyce A. Verran
Paula M. Meek

International Classification for Nursing Practice (ICNP®)

The International Classification for Nursing Practice (ICNP®) is a program of the International Council of Nurses (ICN). The ICNP® is intended to be used to represent nursing phenomena (diagnoses), nursing interventions, and nursing outcomes in documentation in the health care record. As a combinatorial terminology, the ICNP® facilitates cross-mapping of local terms or terms from other standardized classifications and serves as a unified nursing language system. As a unifying framework or unified nursing language system, the ICNP® enables comparison of nursing data across recognized nursing classifications, across organizations, across sectors within health care systems, and among countries. In addition to promoting comparable nursing data, the ICNP® is intended to facilitate comparison of nursing data with data from other health disciplines.

Use of standardized terminologies can support the electronic capture of clinical data by nurses at the source of care delivery. This data can be reused for many purposes, including communication, clinical decision-support, policy making, and knowledge generation. In order to represent nursing practice worldwide, the ICNP® needs to be broad enough to capture the domain of nursing practice globally and sensitive enough to represent the diversity of nursing practice across countries and cultures. The benefits of the ICNP® are to:

- Establish a common language for describing nursing practice in order to improve communication among nurses, and between nurses and others;
- Represent concepts used in local practice, across languages and specialty area;
• Describe the nursing care of people (individuals, families, and communities) worldwide;
• Enable comparison of nursing data across client populations, settings, geographical areas, and time;
• Stimulate nursing research through links to data available in nursing and health information systems;
• Provide data about nursing practice in order to influence nursing education and health policy making;
• Project trends in patient needs, provision of nursing treatments, resource utilization, and outcomes of nursing care.

ICN, representing member associations in over 120 countries, has provided an infrastructure to enhance the development of an ICNP®. Along with the ICNP® member associations, additional partners, such as informatics experts, researchers, governments/health ministries, and industry, are needed to realize the vision of the ICNP®. The vision of ICNP® is to have nursing data readily available and used in health care systems worldwide.

In 1989, based on the concern that there was no common language to describe nursing’s contribution to health, the ICN approved the resolution that launched the ICNP® project. The ICNP® Development Team was organised in 1990 and facilitated the work of many nurses around the world, which resulted in the ICNP® Alpha Version, published in 1996 and followed then by the ICNP® Beta Version in 1999. The Beta 2 Version was released in 2000.

Although the ICNP® has been a project of the ICN since 1989, it was only in 2000 that a formal ICNP® Program was established. As a program the ICN’s commitment to the ICNP® is strengthened. The objectives and plans of the ICNP® program are identified and reviewed annually and organized into three activity clusters:

• communication and marketing,
• research and development,
• coordination and program management.

The ICNP® Program facilitates participation of individuals and groups in the ongoing development and maintenance of the ICNP®. Recent research and development efforts have focused on testing the ICNP® Beta Version and preparing ICNP® Version 1.

It is important to understand that the ICNP® will always be dynamic. Just as nursing science and technology evolve, the terminology that represents nursing practice must evolve. In addition, the ICNP® must continue to meet international criteria set by standards organizations and to work in harmony with other informatics and terminology initiatives. The ongoing development and revision of the ICNP® continue to be complementary to efforts already underway in nursing, building on and unifying the existing work in nursing classifications.

As a program of ICN, there is a major emphasis on worldwide participation of nurses in the development of the ICNP®. Through the European Union-funded Tele-nurse Project and the support of many ICN member National Nurses Associations, over 25 translations of the ICNP® Beta Version have been completed. The translations expanded opportunities for nurses to participate in research and development in their own language.

A number of ICNP® program activities and mechanisms facilitate research and development; for example the ICNP® Evaluation Committee was formed to provide formal review, consultation, and recommendations for the purpose of revising the ICNP®. Evaluation Committee members have already established the ICNP® Review Process, to facilitate submission of new terms and other recommendations to ICN for review and consideration. Currently, there are more than 150 Nursing Practice Expert Reviewers, representing more than 25 countries, participating in the ICNP® review process. To date, hundreds of recommendations have been submitted to ICN and more than 100 reviews for new terms and definitions have been completed. Some examples of new terms submitted to ICNP® include: homelessness (South Africa), gender violence (Swaziland), family crisis...
International Nursing Research

International nursing research represents comparative research on nursing phenomena and on nursing issues conducted in more than one country. This includes research that is conducted cross-nationally to examine issues of global interest to nurses and to test and develop theories. The research is usually conducted by a nurse who resides in one country and studies phenomena in another country. The purpose is to compare the findings with the results of similar research obtained in other countries. Such research provides opportunities to clarify scientific values, explore assumptions, and develop shared frameworks.

International research in nursing is growing with the increased opportunities for travel, networking, and collaboration. The increasing abilities of nurses to study abroad, to attend international conferences, to visit international institutions, and to communicate through electronic mail systems, enhance comparative and collaborative research projects. International scholarship has focused on the use of U.S. nursing theories and the evaluation and testing of their utilities and appropriateness to the different nursing cultures. There are many descriptive and analytical dialogues related to theory in the international literature. These dialogues have resulted in scholarly publications related to the introduction and analysis of U.S. theories in many countries.

Human resources analyses and investigations led to several international projects. Questions related to the image and status of nursing, shortage of nurses, and distributions of nurses in urban and rural settings were examined. The results were compared and contrasted among and between countries and regions. There is general agreement among researchers in many countries on the perception of nursing and the difficulty in recruitment of students and retention of nurses in the workforce.

There are commonalities in nurses’ reasons for leaving the countries and seeking employment in other countries or regions. Nurses emigrate to seek better job opportuni-
Interpersonal communication is defined as verbal interactions between nurses and patients or patient companions for the purpose of sharing relevant health information. Interpersonal communication is one of many skills nurses use when caring for patients. It is central to the work of a profession that depends on interpersonal expertise as much as clinical expertise. Effective delivery of health care frequently depends on the quality of communication between health care providers and their patients. Communication can encompass the verbal, nonverbal, vocal, content, and process aspects of the interaction as well as the social, cultural, relational, behavioral, and interactional characteristics of participants. The majority of health-related research has been on the verbal communication styles of providers during patient interactions.

Interpersonal communication is the primary means by which patients learn about their particular health problems, appropriate prevention and treatment strategies, and the roles both nurses and patients play in achieving health outcomes. Such communication is likely to influence patients’ willingness to share information, adhere to treatment plans, and participate in follow-up. Interpersonal communication in health care is often complex— influenced by personal characteristics and interaction styles of nurses, patients, or patient companions as well as contextual factors. Despite the complexity and importance of such interactions, studies of nurses’ communication and its impact on the processes and outcomes of care are few.

The majority of research on provider-patient communication has occurred over the past 30 years. The focus of this research has been on communication styles and strategies that occur within the provider-patient relationship. Physicians’ verbal communication has been studied far longer and more frequently than that of any other type of health care provider. Medical researchers have largely ignored the role of nonphysician providers and have excluded them from communication analysis. Much of what is known from this research is limited to what is said by white male primary-care physicians during initial acute-care visits (Roter, 2003). Nurse-patient communication has also been examined during this time period and has provided
a basis upon which to describe the types of communication styles used by nurses in practice. Important issues have been raised regarding the communication styles nurses most frequently employ and their effect on patient responses and health outcomes (Courtney & Rice, 1997; Jarrett & Payne, 1995; Lawson, M. T., 2002). The communication patterns studied have been mainly those of white female advanced practice nurses in primary-care settings or basic clinical nurses in acute-care settings. Until recently, little attempt has been made to disentangle the independent effects on communication of key provider, patient, and contextual characteristics. This has resulted in diminished attention to the important role these characteristics may play in shaping the nature and dynamics of communication. Critical methodological issues are also raised about limitations in the ways provider-patient communication research has been studied.

Effective communication does not just depend on the acquisition of the right skills. A variety of characteristics have been identified that affect the quality and quantity of provider-patient communication (Wilkinson, S., Roberts, & Aldridge, 1998; Roter, 2003).

Provider characteristics. Provider communication has been studied more than patient communication; however, provider characteristics were studied less than patient characteristics. Provider characteristics include role, gender, race, specialty training, level of education, practice experience, and communication styles. Most communication studies enlisted small numbers of providers and meaningful individual differences in providers were difficult to find. There may also be assumptions that only patients’ attitudes, emotions, and characteristics influence the interpersonal communication. Since nurses are human beings, it is important to discern how their specific characteristics are reflected in the care provided and the outcomes of that care. It would be important to discover if there are behavioral differences in the communication styles of male and female nurses and if they produce corresponding gender differences in patients’ behavior directed back to them. Discerning whether relationships exist between specific provider characteristics and their ability to pay attention, give comfort, use feedback behaviors, and adjust communication styles to various individual patients would be important. A better understanding of the effects of nurse characteristics on communication behaviors and clinical judgment is needed.

Patient characteristics. Researchers have been mostly concerned with one direction of causality—how providers influence patients. Little work has been done to determine if patient characteristics impact a nurse’s communication style. Patient characteristics include race, gender, age, health status, diagnosis, communications styles, role of patient companion, and values. What research has been done frequently showed no significant correlations or unexpected relationships (Caris-Verhallen, de Gruijter, Kerkstra, & Bensing, 1999). Because the relationship is both reciprocal and dynamic there is a pressing need to capture the contribution of both participants. Not only can a nurse be influenced by his or her own attributes and attitudes, but by those of the patient.

Contextual characteristics. Interpersonal exchange does not occur out of context. Most communication research has been focused almost exclusively on the verbal interchange between nurse and patient without taking into consideration the setting and context in which it occurred. Contextual characteristics comprise environmental and situational factors such as site of interaction, initial or established relationship, type of care provided, time constraints, stressors for participants, and role of participants. Research on nurse practitioner-patient communication occurs mainly in the context of initial or episodic encounters, although in practice the majority of dialogue occurs in the context of established relationships (Lawson, 2002). Most research between basic clinical nurses and patients occurs during the provision of physical care with the focus on providing instructions and explanations (Jarrett & Payne, 1995). This restricted view has limited the discovery
Intimate partner violence refers to physical, sexual, and psychological abuse and stalking committed by one partner against the other in a relationship. Although relationship violence affects both sexes, women are victimized more and they sustain the most severe injuries. Data reported by the Bureau of Justice Statistics show that almost 700,000 events of nonfatal intimate partner violence were documented in 2001 (Bureau of Justice Statistics, 2003). Federal Bureau of Investigation data show that in the last 25 years, 57,000 individuals have been killed in domestic violence situations. The problem is a significant one for the health care community and society at large. Health-related costs of rape, physical assault, stalking, and homicide by intimate partners exceed $5.8 billion each year. Of this total, nearly $4.1 billion are for direct medical and mental health care services.

Nurse researchers have conducted many investigations regarding the physical and mental health of adult victims of intimate partner or domestic violence. Representative nursing research conducted since 1998 is included here. Campbell (2002) and her colleagues compared selected physical health problems of abused and never-abused women with similar access to health care. Employing a case-control study of enrollees in a multisite metropolitan health maintenance organization, they sampled 2,535 women enrollees aged 21 to 55 years, and found that abused women have a 50% to 70% increase in gynecological, central nervous system, and stress-related problems, with women who were sexually and physically abused most likely to report problems. Glass, Dearwater, and Campbell (2001) surveyed all women (N = 4,641) aged 18 years or older who came to the emergency department in 11 mid-sized community-level hospital emergency departments in Pennsylvania and California. They found that more than a third of women who had recently been abused and 76% of women who acknowledged experiencing physical or sexual intimate partner violence within the past year reported that they did not come to the emergency department for treatment of an injury. The majority of women (76% to 90%) agreed with the concept of health care providers reporting intimate partner violence.

Marjorie Thomas Lawson

Intimate Partner Violence
to police. Dienemann and colleagues (2000) surveyed 82 women to determine the extent to which domestic violence was part of the history of women diagnosed with depression. They found a 61.0% lifetime prevalence of domestic violence, and that abused women were less healthy. Prevalence of headaches, chronic pain, rape including marital rape, and sleep problems or nightmares were significantly higher. Severity of abuse was significantly correlated to severity of depression. In a similar vein, Torres and Han (2000) examined psychological distress in a sample of 62 White and an equal number of Hispanic women who had been abused. They found that White women experienced a higher prevalence of psychological distress than Hispanic women. Japanese nurse researchers (Weingour, Maruyama, Sawada, & Yoshino, 2001) also found that women who experienced abuse had significant clinical symptoms of depression and anxiety.

Researchers also conducted research on safety and assessment issues and educational protocols. Mohr, Fantuzzo, and Abdul-Kabir (2001) studied the ingenious ways in which women keep themselves and their children safe in the face of intimate partner and community violence, while R. E. Davis (2002) documented the phenomena of leaving the abusive situation. Employing specific educational protocols, McFarlane, Parker, Soeken, Silva, and Reel (1998) found that pregnant women who were abused and were offered an intervention protocol report a significant increase in safety behavior adoption during and after pregnancy. In a randomized controlled study, McFarlane et al. (2002) tested the efficacy of an intervention administered to abused women in order to increase safety-seeking behaviors. They demonstrated that such an intervention is highly effective when offered following an abusive incident and remains effective for 6 months.

Other noteworthy research conducted by nurses on women exposed to intimate partner violence include findings by McFarlane, Soeken, et al. (1998), who investigated the relationship between abuse to pregnant women and gun access, finding that women who reported gun access by their abusers also reported higher levels of abuse. Nurse researchers also studied nurses’ attitudes and behaviors toward abused women (Henderson, A., 2001), tensions between service providers and victims (Peckover, 2002), and stereotypical thinking focusing on “physical problems” among nurses that precluded assessment of danger and safety issues of victims (Varcoe, 2001).

In sum, studies of the abused adult victim constitute a well-developed and developing body of research. Not only are nurses exploring aspects of safety, education, and assessment, but they are also carrying out intervention studies.

Wanda K. Mohr
Sara Torres
Job Satisfaction

Job satisfaction is the degree to which individuals like their jobs. As a general attitudinal construct, job satisfaction reflects a positive affective orientation toward work and the organization, whereas job dissatisfaction reflects a negative affective orientation.

Job satisfaction has been studied extensively in nursing, psychology, sociology, management, and organizational development. Most commonly, researchers have studied job satisfaction as a dependent variable in assessing the impact of organizational changes and innovations, or as an intervening variable with multi-staged models of employee turnover, retention, or absenteeism. Currently, nurses’ job satisfaction is being studied as a part of the organizational context, in conjunction with variables such as nurse staffing, autonomy, control over nursing practice, burnout, and emotional exhaustion to determine effects on outcomes such as patient satisfaction, quality of care, adverse events, morbidity, mortality, length of stay, and costs. Registered nurse (RN) staff in acute care hospitals has been the population of greatest interest in studies of nurses’ job satisfaction. Less is known about job satisfaction among RNs who work in other settings or about licensed practical/vocational nurses in any setting.

In early studies of organizations, workers’ liking or disliking their jobs usually was labeled morale. Midway through the 20th century, researchers began to develop both general and dimension-specific measures of satisfaction-dissatisfaction. General or global measures estimate an individual’s overall feelings about the job. In dimension-specific measures, subconstructs distinguish satisfaction about specific facets of the job, such as the work or task, pay and benefits, administration, and, for nurses, dimensions such as professional status, nurse-physician relationships, and quality of care. As work on job satisfaction continued, debate arose about whether job satisfaction and dissatisfaction were opposite ends of a single continuum or were two separate constructs. Although job satisfaction currently is reported most often in the research literature, the one-or-two-constructs issue has not been resolved. The terms are used inconsistently and sometimes interchangeably. A more recent concern is the possibility that positive and negative affectivity, which are mood-dispositional personality traits, contaminate effects of determinants (e.g., autonomy, stress, burnout) on strain-related variables such as job satisfaction. In a meta-analysis of affective underpinnings of job perceptions, Thoresen, Kaplan, Barsky, Warren, and de Chermont (2003) found that both positive and negative affect uniquely contributed to the prediction of job satisfaction, organizational commitment, emotional exhaustion, and personal accomplishment.

Commonly used measures of job satisfaction have been influenced by or adapted from instruments developed in the organizational research field. Subsets of the Brayfield and Rothe (1951) items have been used frequently as general measures of job satisfaction. Prominent in the measurement of dimension-specific job satisfaction among nurses are the Index of Work Satisfaction (IWS) (Stamps,
1997), the McCloskey-Mueller Satisfaction Scale (MMSS) (Mueller & McCloskey, 1990), and the Nursing Work Index (NWI)/Revised Nursing Work Index (NWI-R) (Aiken & Patrician, 2000; Kramer & Hafner, 1989). These measures all estimate job satisfaction at the individual level. Recently, Taunton et al. (in press) adapted the Stamps IWS for use in the National Database of Nursing Quality Indicators (NDNQI). The adaptation included changing the wording of items to a unit-level referent so that satisfaction data could be aggregated to the unit level and analyzed with other unit-level indicators (e.g., nursing care hours per patient day, nurse staffing mix, pressure ulcers, patient falls, and patient satisfaction) as part of the American Nurses Association Safety and Quality initiative.

Researchers choose measures of job satisfaction based on the nature of the study and the response burden for subjects. For instance, a short, general job satisfaction measure would impose less subject burden in a multisite study that includes multiple measures of organizational and clinical variables or when assessing the overall relationship of job satisfaction to behavior. In contrast, researchers focused on the impact of a specific nursing practice innovation in one setting might be interested in nurse satisfaction about professional status, nurse-physician relationships, quality of care, or other dimension-specific facets. Also, as more researchers study job satisfaction as part of the unit organizational context, it will be important to use a measure that is reliable and valid at the aggregated unit or hospital level, such as the NDNQI-Adapted IWS (Taunton et al., in press).

Researchers (Blegen, 1993; Irvine & Evans, 1995) conducting meta-analyses of accumulated nursing job satisfaction research have found that autonomy, stress, commitment to the organization, and intent to stay in the job demonstrate the strongest, most consistent correlations with job satisfaction; autonomy and stress usually are antecedents of job satisfaction, whereas commitment and intent to stay are outcomes. Other variables with more moderate correlations are communication with supervisor, recognition, routinization, communication with peers, fairness, and locus of control. In general, variables measuring job characteristics (e.g., routinization, autonomy) and work environment (e.g., leadership, stress) have stronger relationships than economic (e.g., pay, opportunity elsewhere) or individual difference (e.g., age, experience, organizational tenure) variables. More recently, researchers of the organizational context for nursing have found higher nurse-to-patient ratios are associated with lower job satisfaction and higher emotional exhaustion, as well as higher patient risk-adjusted mortality and failure-to-rescue (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002).

A high priority for current and future research is examining the relationship between nurses’ job satisfaction and outcomes of care, such as quality of care, patient satisfaction, adverse events (e.g., falls, pressure ulcers, failure-to-rescue, infections), mortality, and the like. These relationships need to be studied not only in acute care settings, but also in the community, in home care, and in long-term care facilities—which will allow improvement of outcomes across all health care settings. Issues that still need more elucidation are first, the degree to which nurses’ positive and negative affectivity confound relationships between job satisfaction and variables such as autonomy, job stress, burnout, and emotional exhaustion. Second, the association between patient positive and negative affectivity and patient satisfaction with nursing care is not clear. Here again, associations between nurse satisfaction and patient satisfaction could be confounded by underlying affectivity. Last, the unresolved issue about whether job satisfaction and dissatisfaction are separate constructs warrants further attention. Nurses’ satisfaction and dissatisfaction may associate differently with outcomes of care.

Roma Lee Taunton
Updated by Diane K. Boyle
Peggy A. Miller
Job Stress

Results of a 1995 survey conducted by the American Nurses Association indicated that nurses considered stress to be their number-one occupational hazard. The nursing literature is replete with opinion articles on factors in the work setting that make situations conducive to stress for nurses; however, few articles report research results. It was during the 1970s that nurse researchers as well as sociologists and psychologists became interested in studying job stress for nurses. Early research on job stress for nurses centered on the disruptive effects of changing shifts on circadian rhythms and subjective sense of well-being. In large measure as a result of research on the effects of frequent shift changes, the practice of changing shifts more frequently than every 2 weeks ceased during the 1980s. Research to identify other factors that contributed to job stress focused on intensive care nurses, neonatal intensive care nurses, and hospice nurses.

One of the first studies concerning the experience of stress by staff nurses was conducted by Gray-Toft and Anderson (1981). They developed a measure of stress for nurses called the Nursing Stress Scale (NSS). The commonly used NSS contains 34 potentially stressful events divided into seven categories: death and dying, workload, uncertainty concerning treatment, conflict with physicians, conflict with other nurses, lack of staff support, and inadequate preparation to deal with emotional needs of patients. In 1983, Jacobson and McGraw published Nurses Under Stress, which included a summary of their research on stress experienced by neonatal intensive care nurses as well as the work of other nurse researchers on stress experienced by nurses. During the 1980s through early 2004, much of the research on nurses and stress has been as conducted by nurse researchers in European and Asian countries.

Among the studies focused on nurses and stress there have been consistent findings that the following factors make situations conducive to stress for nurses: work overload, staff shortages, lack of autonomy, equipment failures, conflict with physicians, conflict with administration or perceived lack of support from administration, lack of communication, ethical issues concerning patients on life support, high personal expectations for performance, and caring for high-acuity patients. Several factors have been examined as possible buffers to job stress experienced by nurses, including hardiness (Wright, Blache, Ralph, & Luterman, 1993) and social support (Cronin-Stubbbs & Rooks, 1985). There is a fairly consistent finding in research reports that social support acts as a buffer to stress experienced by nurses in all settings.

Consistent with previous findings, a critical review and meta-analysis of the research that focused on strategies to help nurses with work-related stress (McVicar, 2003) found that “...work overload, leadership/management style, professional conflict and the emotional cost of caring have been the main sources of distress for many years...” (p. 633). Importantly, McVicar also found that although there were common themes across studies, it is apparent that stress perceptions are subjective and individualized, making it difficult to generalize from one clinical area to another. Therefore, it is critical to examine the personal factors that influence the perception of stress.

According to Mimura and Griffiths (2003), based on an extensive search of databases including CINAHL, Medline, and the Cochrane Library, there were only seven randomized controlled trials and three prospective cohort studies assessing the effectiveness of stress management interventions to assist nurses to either prevent or manage stress effectively at work. Although the use of cognitive techniques and social support has demonstrated more effectiveness than exercise, music, and relaxation training, the results of the ten studies reviewed cannot be interpreted with confidence due to small sample sizes and methodological problems.

Given the growing shortage of nurses in the United States over the last decade, it is very surprising that the issue of work-related stress for nurses in the U.S. has not become a
significant focus of nurse researchers. Future directions for nursing job stress research should include: (a) studies to evaluate the person-environment fit model (French, Rodgers, & Cobb, 1974) or the job demand model (Karasek & Theorell, 1990) to explain factors that contribute to job stress for nurses; (b) identification of personal factors that put a nurse at risk for job stress; (c) intervention studies to evaluate the effectiveness of stress management strategies, including cognitive restructuring to bolster resistance resources such as hardiness and use of social support; and (d) longitudinal studies to evaluate the effectiveness of stress prevention and stress management strategies taught to students in nursing by following them to job sites.

BRENDA L. LYON

(Dorothy) Johnson’s Behavioral System Model

Johnson’s Behavioral System model consists of two major components, nursing and person. Nursing is a function of actions and goals while person is described as a behavioral system (Johnson, D. E., 1980). As a behavioral system, the person is made up of interrelated subsystems that influence one another and are influenced by the environment. The seven subsystems are open and linked. While equilibrium is the goal of the behavioral system, maturation causes each subsystem to continuously change which results in temporary disturbances in equilibrium. Greater disequilibrium occurs due to environmental stimuli or internal forces, and nursing is an external regulatory force that assists the person to regain equilibrium. The seven subsystems have requirements of protection, nurturance, and stimulation from the environment. Without the existence of those requirements, the subsystems are unable to perform their function. Behavioral actions of the subsystem are also driven by a particular goal, the individual’s “set” which is a predisposition to respond in a particular way, and the choices that the individual may make.

The function of the attachment/affiliative subsystem is security. Social inclusion, intimacy, and social bonding are part of that security. The dependency subsystem evolves developmentally from total dependence on others to independence that continues to provide nurturance in terms of approval, attention, or recognition as well as physical assistance. The achievement subsystem is concerned with mastery or control of some aspect of self or environment. Proposed consequences include physical, creative, mechanical, and social skills.

Behavioral, rather than biological, aspects are the focus of the ingestive and eliminative subsystems. Therefore, appetite satisfaction is identified as the function of the ingestive subsystem and behavioral excretion of wastes as that of the eliminative subsystem. The emphasis is on when, where, how, what, how much, and under what conditions individuals eat or eliminate wastes. Social and psychological factors are major influences on these subsystems.

Procreation and gratification are the dual functions of the sexual subsystem. Cultural norms and values as well as biological sex influence this subsystem. Consequences of this subsystem include gender identity, courting, and mating. The function of the aggressive subsystem is defined as self-protection and preservation, and is not viewed as a learned, negative response.

The Behavioral System model leads the researcher to problems and solutions. Researchers have investigated behavioral system distresses that are connected to illness or major environmental stimuli. In clinical practice, the usefulness of Johnson’s model has been demonstrated, particularly with the nursing process and assessment of outcomes. Using this model, nursing assessments are based on patterns that individuals have for meeting their needs. Johnson’s model has also been used as a framework for nursing interventions that are personalized for individual patients (Cox, M., 1994; Derdiarian, 1990; Holladay, 1997), and patient classification systems have been developed based on the sub-
systems identified in this model (Poster, Dee, & Randell, 1997).

With the goal of maintaining or restoring balance to an individual’s behavioral system, nurses can develop precise measurements for evaluating the efficacy of nursing actions. Majesky, Brester, and Nishio (1978) developed patient indicators of nursing care. This tool is considered one measure of quality nursing care. W. Reynolds and Cormack (1991) have been able to evaluate outcomes of nursing interventions with psychiatric patients. Numerous other studies have demonstrated the usefulness of the Behavioral System model in nursing practice in a variety of settings (Raudonis & Acton, 1997; Stuifbergen, Becker, Rogers, Timmerman, & Kulberg, 1999). Thus the ultimate goals of research using the Behavioral System model are to study the effects of nursing action on the behavioral system equilibrium and to foster changes as appropriate.

Jacqueline Fawcett
Updated by Sharon A. Wilkerson
Kangaroo Care

Most nurses working in an intensive care nursery have witnessed parents expressing intense need to hold their ill preterm infants. A new method of care addressing this need is “kangaroo care,” a term derived from its similarity to the way marsupials mother their immature young. During kangaroo care (KC), mothers simply hold their diaper-clad infant underneath their clothing, skin-to-skin, and upright between their breasts; if needed for warmth, a cap and a blanket across the infant’s back may be added. In complete kangaroo care mothers allow self-regulatory breast-feeding. In developing countries the method is called kangaroo mother care (KMC), because mothers are usually the central figure responsible for care and they breast-feed exclusively. Kangaroo care, also known as skin-to-skin contact (SSC), is widespread in Scandinavia and Africa and is proliferating elsewhere. The method, which originated in Bogota, Colombia, represents a blend of technology and natural care. Full-term infants also are vulnerable during the physiologically demanding intrauterine-extraterine transition following birth and therefore benefit from kangaroo care (Anderson, G. C., Moore, Hepworth, & Bergman, 2003).


There are five categories of kangaroo care, based primarily on how soon kangaroo care begins (Anderson, G. C., 1995). Late Kangaroo Care, still the most common category in the U.S., begins when infants are stable in room air and approaching discharge. Infants given Intermediate Kangaroo Care have completed the early intensive care phase, but usually still need oxygen and probably have some apnea and bradycardia. Also included in this category are infants who are stabilized with mechanical ventilation and infants who, although too weak to nurse, are placed at the breast during gavage feedings, a method that facilitates lactation. Early Kangaroo Care is used for infants who are easily stabilized and begins as soon as infants become stable, usually during the 1st week and perhaps even the 1st day postbirth. The idea is that mothers can help maintain stability by giving kangaroo care. Very Early Kangaroo Care begins in the delivery or recovery room between 15 and 60 minutes postbirth. With Birth Kangaroo Care the infant is returned to the mother immediately following birth. The rationale in these last two categories is that the mother can help to stabilize her infant.

Numerous important extensions of kangaroo care have been reported as separate case studies, mostly in MCN, The American Journal of Maternal-Child Nursing; examples are with twins, triplets, an intubated preterm infant, full-term infants having breast-feeding difficulties, a near-term infant with gastric
Kangaroo Care 313

reflux, adoptive parents, and a mother who felt depressed during early postpartum (Anderson, G. C., Dombrowski, & Swinth, 2001). Other journals that frequently carry kangaroo care articles include Acta Paediatrica (formerly Acta Paediatrica Scandinavica); Journal of Obstetric, Gynecologic, and Neonatal Nursing (JOGNN); and Neonatal Network, the Journal of Neonatal Nursing.

Kangaroo care is safe and has health benefits based on evidence (Anderson, G. C., 1991, 1995, 1999). In the United States nurses have done most of this research. Findings included adequate warmth, energy conservation, regular heart rate and respirations, fourfold decrease in apnea, adequate oxygenation, more deep sleep and alert inactivity, less crying, less cranial deformity, no increase in infections, fewer days in incubators, greater weight gain, and earlier discharge; lactation and breast-feeding increase and last longer. Kangaroo care, especially during breast-feeding, was analgesic for infants, provided mothers feel relaxed. Fathers also gave kangaroo care effectively, as do grandparents, young siblings, and selected important others. Parents feel more fulfilled, become deeply attached to their infants, and feel confident about caring for them even at home. Cost-effectiveness and improved long-term outcomes exist but are not yet evidence-based.

The National Institute of Nursing Research has funded nurses to conduct six randomized trials with preterm infants in which kangaroo care was the intervention. Five trials have been conducted by Ludington; three completed trials were with infants in open-air cribs, in incubators, and on mechanical ventilation (e.g., Ludington et al., 2003). Two trials are in progress: one on sleep and brain development measured by electroencephalogram and the other on blunting of pain measured by heart rate variability. The sixth trial was with 32–36 week healthy infants beginning kangaroo care on average 4.5 hours postbirth (e.g., Anderson, G. C., Chiu, et al., 2003). In a pilot trial for the funded trial, 34–36 week infants began almost continuous kangaroo care by 30 minutes postbirth, had remarkable behavioral organization, began breast-feeding exclusively by 2 hours, and were breast-feeding competently within 24 hours. Importantly, two infants had developed respiratory distress (grunting) by the time kangaroo care began, but this disappeared quickly while the infants stayed in kangaroo care and received warmed humidified oxygen via oxyhood; the warmth and humidity are essential (Anderson, G. C., 1999). Seven randomized trials done in developing countries, numerous others in Europe, and two in Taiwan have led to additional publications.

Although fully implemented in some hospitals, use of the kangaroo care method generally remains scattered. The method is not allowed in some hospitals and may not last in others due to resistance from some hospital staff with resultant variable support for parents. An elegant model for introducing the method and effecting desired change and implementation is described by Bell and McGrath (1996). Because kangaroo care benefits are dose-related, parental burdens such as time required, fatigue, discomfort, home-related responsibilities, stress, and anxiety warrant creative initiatives including broad social services to facilitate relaxation and extend caregiving (Anderson, G. C., Chiu, et al., 2003).

Other trends in kangaroo care include increasingly rigorous research, federal funding, publication of detailed guidelines (e.g., by WHO [2003a], available online), conferences devoted to kangaroo care, kangaroo care for sicker infants and for full-term infants, kangaroo care provided by selected family members or friends, consumer awareness of and desire for kangaroo care, and increased use of kangaroo care to facilitate lactation and breast-feeding especially for dyads having breast-feeding difficulties. The new realization that very early kangaroo care can help stabilize some preterm infants and prevent NICU admission has increased interest in giving kangaroo care as soon as possible postbirth, as often as possible thereafter, and for as long as possible each time. Nursing research is needed to document the great poten-
tial that kangaroo care in its various forms has for quality care, mutual relaxation and stress reduction, improved outcomes, parental satisfaction, and cost reduction.

Gene Cranston Anderson

(Imogene) King’s Conceptual System and Theory of Goal Attainment

Imogene King’s initial interest in theory was to develop a conceptual frame of reference to focus and organize nursing knowledge with the goal of identifying a systems theory for nursing (King, 1981). Introduced in 1981, King’s theory focused on individuals as personal systems, two or more individuals as interpersonal systems, and organized boundary systems that regulate roles, behaviors, values, and roles as social systems. Interactions within and across systems influence human acts, or behavior, and subsequently, health outcomes. According to King, systems, and interactions are best understood by concepts, the building blocks of theory. Concepts for understanding personal systems are perception, self, growth and development, body image, learning, time, personal space, and coping. Concepts important for understanding interpersonal systems are interaction, communication, role stress/stressors, and transaction. Concepts useful for understanding social systems are organization, authority, power, status, and decision making. King identified that concepts and relationships are interrelated both within and between systems, which is consistent with general systems theory. Interpersonal systems are composed of personal systems, and interactions with social systems influence both interpersonal and personal. Interactions influence behavior, attitudes, beliefs, values, and customs.

Perception, interaction, and organization are comprehensive concepts for personal, interpersonal, and social systems, respectively. Perception is a process of organizing, interpreting, and transforming information from sense data and memory (King, 1981, p. 24). Interaction is defined as two or more persons in mutual presence and includes a sequence of goal-directed behaviors (King, p. 85). Organization is a system whose continuous activities are conducted to achieve goals (King, p. 119). The metaparadigm concepts of person, health, environment, and nursing are well-defined and explicitly linked: “The focus of nursing is human beings interacting with their environments leading to a state of health for individuals, which is the ability to function in social roles” (King, p. 143). There have been few changes to the conceptual system since it was first published. King has, however, provided clarification, explanation, and expansion of concepts through multiple publications; addressed concerns and questions raised by others; and explicated the philosophical and ethical basis of the conceptual system (Frey, 2004).

As a grand level theory, King’s Conceptual System provides a distinct focus for the discipline, the process of nursing, and a framework for deriving middle-range theories. The first middle-range theory derived from the conceptual system was King’s Theory of Goal Attainment (King, 1981). The Theory of Goal Attainment was derived from personal and interpersonal system concepts and focused on nurse-client interactions that lead to transactions and goal attainment. A descriptive study of nurse-client interactions by King resulted in the Model of Transactions and a classification system of behaviors in nurse-patient interactions that lead to transactions and goal attainment. Key behaviors in the process of transactions include mutual goal setting, exploration of means to achieve goals, and agreement on means to achieve goals. The theory of goal attainment specifies the process of nursing. In addition, it clearly reflects King’s historical emphasis on nursing outcomes. Outcomes are defined as goals achieved and can be used to evaluate the effectiveness of nursing care.

In the past 2 decades there has been a considerable extension and application of King’s Conceptual System and Theory of Goal Attainment (Frey & Sieloff, 1995; Sie-
lof, Frey, & Killeen, in press). Sieloff, Frey, and Killeen present a state-of-the-art perspective by reviewing application of the conceptual system and theory of goal attainment across systems, client concerns, patient populations, nursing specialties, and work settings; implementation in hospitals and community settings; the fit of the conceptual system and theory of goal attainment with evidence-based practice, nursing process, standardized nursing languages, performance improvement, and technology; and middle-range theories derived from the conceptual system. In addition to King’s theory of goal attainment, middle-range theories derived by others address family (Doornbos, 2000; Wicks, 1995), health outcomes in children with chronic conditions (Frey, 1995), empathy (Alligood, 1995), and nursing department power (Sieloff, 2003). Each theory represents an ongoing program of research.

Imogene King is a strong advocate for theory-based education and practice for nursing. Her conceptual system for nursing provides a broad and enduring framework to guide nursing practice, derive middle-range theories, and integrate ongoing changes in nursing and the health care system.

Maureen A. Frey
Leininger's Theory of Culture Care Diversity and Universality

The Theory of Culture Care Diversity and Universality is derived from the disciplines of nursing and anthropology. Madeline Leininger conceptualized the theory in the mid-1950s while working as a clinical nurse specialist with disturbed children and their families (George, 2001). Troubled by the lack of knowledge available to help nurses understand the variations in care required for people from different cultures, Leininger set out to establish a new direction for nursing and to bridge the knowledge gap between nursing care and culture (Leininger, 2001a).

Leininger was the first professional nurse to earn a doctorate in anthropology. She is credited with establishing transcultural nursing and coining the term “culturally congruent care” (Leininger, 2001a). According to Leininger, culture care is the broadest holistic means of knowing, explaining, interpreting, and predicting nursing care phenomena to guide nursing practices. Culturally congruent care is beneficial care and occurs only when the culture care values, expressions, or patterns of the client (individual, group, family, or community) are known and used in appropriate and meaningful ways by the nurse. Thus, transcultural nursing focuses on comparative care knowledge of specific and diverse cultures that helps clients regain and maintain their well-being, and face death, disabilities, or chronic illnesses in ways that are beneficial to them and fit with their beliefs, values, and lifeways (Leininger, 1995, 2001b).

Leininger established the theory of culture care to account for and explain much of the phenomena related to transcultural nursing. The purpose of the theory is to discover human care diversities and universalities while the goal of the theory is to improve and provide culturally congruent care. Leininger first published the theory in 1983 with subsequent publications of revisions in 1988, 1991, 1995, and 2001 (Leininger, 2001a). With each publication of the theory, the conceptual definitions have evolved to higher levels of clarity, as has the nature of the underlying theoretical assumptions and statements.

The components of the theory are depicted in the Sunrise Model. The Sunrise Model is designed to function as a cognitive map for the study of culturally congruent care. Even though Leininger provides orientational definitions for the concepts in the model, she discourages the use of operational definitions in the study of culture care (Leininger, 2001a). Leininger supports exploring and discovering the essence of care for a particular culture, and puts forth the theory of culture care worldwide as necessary research for epistemic knowledge for the profession of nursing. The theory has three theoretical modes: cultural care preservation and/or maintenance, cultural care accommodation and/or negotiation, and cultural care repatterning or restructuring (Leininger). The three modes were developed based on Leininger’s experiences with using culture care knowledge to assist clients in several Western and non-Western cultures. According to Leininger, the modes are care centered and use both emic (generic or folk care) and etic (professional care) knowledge.
In Leininger’s theory, culture care diversity points to the differences in meanings, values, patterns, and lifeways that are related to assistive, supportive, or enabling human care expressions within or between collectives, while culture care universality points to the common, similar, or dominant uniform care meanings (Leininger, 1995, 2001a). Worldview is the way people look at the world and form a picture about their lives and the world. According to the tenets of the theory, this worldview is defined by cultural and social structure dimensions that involve dynamic patterns of a particular culture that include technological, religious, philosophical, kinship, social, political, economic, and educational interrelated factors as well as culture values and lifeways. The environmental context is the totality of an event or experience and gives meaning to human expressions, social interactions, and interpretations in particular physical, sociopolitical, ecological, and/or cultural settings. Ethnohistory refers to past facts, experiences, and events that are primarily people-centered and describe, explain, and interpret human lifeways within a particular cultural context. Generic care system refers to folk or lay knowledge and skills that are culturally learned and transmitted and used to provide assistive, supportive, or enabling acts for another individual. Professional care system refers to health, illness, and wellness-related knowledge and practice skills that are formally taught, learned, and transmitted.

In the Theory of Culture Care Diversity and Universality, Leininger orientationally defines health as “a state of well-being that is culturally defined, valued, and practiced, and which reflects the ability of individuals (or groups) to perform their daily role activities in culturally expressed, beneficial, and patterned lifeways” (Leininger, 2001a, p. 48). Care is described as being essential to curing, healing, health, well-being, and survival. Care is also presented as the dominant and unifying feature of nursing, and one of the most important concepts of transcultural nursing (Leininger, 1985a, 1995, 2001a). Nursing is presented as a transcultural humanistic and scientific profession and discipline whose central purpose is to serve human beings worldwide. Leininger asserts that even though the concepts of health, person, nursing, and environment are supported by nursing theorists as the major elements under consideration in the practice of nursing, care is the essence of nursing and includes “concrete phenomena related to assisting, supporting, or enabling experiences or behaviors toward or for others with evident or anticipated needs to ameliorate or improve a human condition or lifeway” (Leininger, 2001a, p. 46).

The Theory of Culture Care Diversity and Universality is broad, comprehensive, and worldwide in scope, demonstrating the criterion of generality, and addressing nursing care from a multicultural and worldview perspective. The ethnonursing research method was designed to systematically explore the purpose, goal, and tenets of the theory through a naturalistic and predominantly emic open-inquiry discovery approach (Leininger, 2001a). Ethnonursing focuses on the study of nursing care beliefs, practices, and values, cognitively perceived and known by a particular culture through their experiences, beliefs, and value systems. Over the past 40 years, Leininger’s theory of culture care has become well-known and valued; studies have been conducted in approximately 100 cultures using the culture care theory (Leininger, 2001b). Leininger has published approximately 27 books and 250 articles on transcultural nursing and human caring, and the Journal of Transcultural Nursing, which was founded by Leininger, has been a major source for dissemination of caring constructs and culture care information. The knowledge gap between nursing care and culture has narrowed and clients worldwide are realizing the benefits of culturally congruent care. There is a wealth of new generic and professional culture care knowledge available to guide transcultural nursing teaching and practices. The theory has contributed significantly to soundly establishing the field of transcultural nursing as a formal area of study, research, and practice, and Leininger predicts that “by the year 2010, transcultural nursing with a
human care diversity and universality focus will become the arching framework of nursing” (Leininger, 2001a, p. 414).

Sandra C. Garmon Bibb

Longitudinal Survey

In longitudinal study designs the variables of interest are measured at several points in time for the same individuals. A value of longitudinal designs is the ability to shed light on trends and the temporal sequencing of phenomena. Most health-related phenomena of interest in nursing science are dynamic in nature. Describing patterns of change in phenomena and evaluating the outcomes of nursing interventions over time often are the focus of nursing research. Topics such as sense of well-being, family coping in chronic illness, adaptation to parenthood, and recovery from life-threatening illness are appropriate for longitudinal investigation. Nursing intervention outcomes are often measured during the course of the intervention and at several follow-up points—for example, changes in quality of life following a telecommunications nursing intervention or improvement in parents’ ability to discipline children after participating in a series of parenting classes. A variety of longitudinal designs are employed in nursing research, such as time series design with repeated measures on a single entity or a number of entities at a relatively large number of time points. Panel designs may be used for making observations on many entities but at relatively few times. Although the relationship of the selected variables to the appropriate timing of measurement is critical in longitudinal research, nurturing a longitudinal sample is an art that researchers often underestimate.

Attrition of the sample is a serious compromise to meaningful study outcomes. Despite a precise sampling strategy, the population of interest will be represented inadequately if a large proportion of the sample fails to respond to the questions. Once a sample is accrued, retention is essential because attrition is financially costly and threatens the internal and external validity of results. There are many reasons for sample attrition, including lack of interest, loss to follow-up due to address changes, burden of participation, and exacerbation of the illness.

Obtaining an adequate response rate for cross-sectional surveys requires careful attention. A more challenging task is maintaining the response rate from participants who are repeatedly answering the same set of questions over several test points, extending for months or even years. Dillman (1978) established techniques that have been shown to facilitate the process of engaging respondents and enhancing the quality and quantity of responses. The total design method (Dillman) is based on the process of getting potential participants to complete questionnaires honestly and return them. The process can be viewed as a special case of social exchange. Classic social exchange theory asserts that the actions of individuals are motivated by the rewards they hope to receive. In the case of research there are three things that must be done to maximize survey response: minimize the costs of responding, maximize the rewards, and establish trust that rewards will be delivered (Dillman).

Costs to participants in survey research include tangible costs, such as envelopes and postage, which can be easily addressed by the researcher. The intangible costs of time and effort take more creativity and thoughtfulness. A questionnaire that is attractive, distinctively identified with the project, easy to read and complete, reduces perceived cost. Techniques for reducing the effort in completing the questionnaire include (a) stapling the booklet in the centerfold, thus allowing it to open out flat; (b) using clip art throughout the booklet to reduce boredom; (c) constructing response choices so that a simple mark is required, thus reducing error and
mental effort; and (d) using adequate “white space” to give the image of being easy to complete.

Thibaut and Kelley (1959) noted that being regarded positively by another person has reward value. Techniques to increase intangible rewards include (a) frequent expressions of positive regard in all correspondence; (b) expressions of the importance of participation; (c) personal salutations and real signatures; (d) a consultative approach, including an open-ended question asking for information that the respondent thinks would be important for the study; (e) holiday greetings and birthday cards; (f) newsletter every 6 months; and (g) handwritten notes in response to those who share personal information. Tangible rewards such as money or gifts should be carefully considered.

Identification of the research with an agency with a good reputation may increase the sense of trust. Respondents may return their questionnaires to the researcher, not so much because of any feelings of obligation to the researcher but because they feel that they have received past benefits from the university or health care agency (Dillman, 1978). Over the course of a longitudinal study, carrying out promises for a newsletter with updates on the progress of the study and brief reports of results is critical for engendering trust. Sensitivity to the needs of particular groups may also increase trust. For example, calling the post office in a small rural town before sending a mass mailing, to express concern about the additional workload, can engender trust with a key person in the community. This trust and interest in the study will be translated to the community at large. Exchange relationships must be nurtured throughout the course of the study. For example, as the project unfolds, members of the research team often come to be viewed as experts. When phone calls are received asking for advice about a specific disease or a new treatment or requesting information about the availability of support groups or educational programs, the response should be friendly and accurate; and a referral is made when appropriate. Dealing with phone calls and mail in a manner that is respectful and helpful is critical to the maintenance of the study sample.

Attention to follow-up is critical to a good response rate. The total design method contains a detailed routine for prompting nonresponders that has been very effective. An important aspect of follow-up is a personalized, signed thank-you letter after the return of the questionnaire. In a 5-year study in which questionnaires were completed annually, a systematic follow-up routine was used. A response rate of 89% for usable data for the 5th year was reported (Weinert & Catanzaro, 1994).

Undertaking longitudinal research requires a skillful and creative research team. Attention to issues related to costs and rewards, engendering trust, and maintaining interest are essential elements of success. Nonresponse and loss to the study cannot be totally eliminated, but careful attention must be paid to techniques designed to increase response rates and engage participants in the activities of the research project. Successful longitudinal research is truly an art form. Although careful attention to minor points may appear to be overly labor-intensive, they can lead to sustaining the sample for long periods of time and obtaining higher quantity and quality of data.

Clarann Weinert
Managed Care

The health care industry has experienced a dramatic transformation over the last 50 years. After World War II, American health care witnessed an unprecedented growth. With the advent of social programs such as Medicare and Medicaid, the number of Americans with access to health care increased as did the number of health care professionals and hospitals. The demand for health care with a traditional payment fee-for-service resulted in insurers passively reimbursing for what was charged. This fact, coupled with emerging technology, resulted in increased health care utilization and cost of care (Light, 1991; Robinson, J. C., 1995).

The term managed care has been broadly defined as a system that provides health care at an acceptable level of quality and cost (Kirk, 1997). Specifically, it is the combining of a prepaid, capitalized payment for health insurance with group medical practice as the means of delivery of services (Newbrander & Eichler, 2001). Physician and hospital payments are made through an agreed-upon capitalized reimbursement. The benefits of managed care include the spreading of risks, since premiums are prepaid by large populations; a focus on prevention with a wide range of services; and the performance of case management (preauthorization, utilization services, and discharge planning). Four basic forms of managed care organizations (MCO) exist. These include health maintenance organizations (HMO), preferred provider organizations (PPO), exclusive provider organizations (EPO), and point-of-service (POS).

Prior to the 1960s only a few MCOs existed, such as Community Hospital Association of Elk City, Oklahoma (1929) and Kaiser Foundation Health Plan in California (1942). MCOs became prominent in the 1970s to inhibit cost inflation. Peer review, rate setting, and passage of certification-of-need legislation was also instituted to decrease costs. Today purchases of health care have become active price setters of health services and surveyors of quality care instead of passive negotiators. By 1996, over 25% of the U.S. population, 67 million people, were enrolled in some form of managed care. Today more than 50% of insured individuals are enrolled in a MCO.

As MCOs have proliferated so has the type and amount of related research. Initially research efforts focused on variations in health services provided throughout the United States (Wennberg & Cooper, 1999). Currently managed care researchers explore such issues as cost, quality, and the impact of MCOs on the health care environment. Theories such as the principle/agent theory (Buchanan, A., 1988), and social exchange theory (Blare, 1964) are used to explain the behaviors and outcomes of individuals in the health care system. The emerging work environment will include a continued focus on quality and decreased costs. Managed care will heighten the need for preventative services offered in community agencies. Additional research should be conducted that substantiates the positive cost/quality ratio.

SUSAN HOUSTON
Maternal Anxiety and Adaptation During Pregnancy

Pregnancy, as a period of substantial biological and psychosocial change, can be expected to raise anxiety about the future. Anxiety is the psychological consequence of exposure to stressful circumstances that challenge one’s capacity to cope. Patterns of maternal anxiety may be adaptive or maladaptive from psychosocial and psychophysiological perspectives. Maladaptive psychosocial prenatal responses have been associated with postpartal maternal adaptive difficulty, marital disturbance, and infant and childhood development problems.

Psychophysiological responses to anxiety involve neuroendocrine pathways. The sympathetic autonomic nervous system, through catecholamine release, may alter uterine contractile activity in pregnancy and labor and, by arterial vasoconstriction, may restrict uteroplacental perfusion and fetal growth. Also, the hypothalamic-pituitary-adrenal (HPA) axis and corticotropin-releasing hormone production during pregnancy may control the timing of birth and influence preterm birth. Adrenocorticotropin hormone also is a sensitive indicator of maternal psychological stress. Another HPA axis pathway may alter immune system response, rendering the expectant mother less resistant to infection. While such disregulation is associated with maladaptive responses, other factors can modify stress responses. The magnitude and duration of the stressor, the timing of a critical event, the genetic vulnerability of the mother and fetus, and social environment factors, may foster homeostasis and offset disregulation.

In general, pregnant women have higher anxiety in all trimesters of pregnancy than nonpregnant women (Singh & Saxena, 1991). Studies of maternal anxiety cite psychosocial factors as the most frequent and significant influences on pregnancy adaptation, birth outcomes, and subsequent postpartal maternal/infant adaptation. Two different and complementary conceptual frameworks of maternal prenatal adaptation have been presented by Rubin (1975) and by Lederman (1996). Rubin posited trimester tasks concerning binding-in and binding-out of pregnancy. Lederman identified seven dimensions of maternal development based on studies of prenatal health outcomes and postpartum adaptation:

- **Acceptance of Pregnancy**: Planning and wanting the pregnancy, happiness, tolerance of discomforts, ambivalence.
- **Identification with a Motherhood Role**: Motivation and preparation for motherhood.
- **Relationship to Mother**: Availability of the gravida’s mother, her (mother’s) reactions to the pregnancy, respect for the gravida’s autonomy, willingness to reminisce; the gravida’s empathy with the mother.
- **Relationship to Husband/Partner**: Mutual concern for each other’s needs as expectant parents; effect of pregnancy on the relationship.
- **Preparation for Labor**: Practical steps, maternal thought processes.
- **Fears Pertaining to Pain, Helplessness, and Loss of Control in Labor**: Stress, pain, self-estimated coping ability.
- **Concern about Well-Being of Self and Infant in Labor**: Regarding deviations from the norm.

These seven dimensions are measurable using questionnaire and interview instruments, both showing high reliabilities for each dimension.

Significant differences have been found in the outcomes of pregnancy for women experiencing high prenatal-state anxiety and psychosocial or developmental conflict. In several studies (summarized in Lederman, 1995a, 1995b, 1996), the personality dimensions on adaptation to pregnancy showed that higher maternal anxiety in pregnancy and labor were correlated with higher plasma catecholamines during labor, decreased uterine contractility, fetal heart rate deceleration, and prolonged labor. Recently, results of another study (Lederman, Weis, Brandon, &
Mian, 2002) showed that anxiety, as measured by the different personality dimensions, predicted length of gestation (preterm labor), gestational age at first prenatal visit, and antepartal and labor complications. Of particular interest were findings that none of the demographic dimensions, such as age, education, and income, when entered into a multiple regression analysis with the personality dimensions, retained predictive significance. These novel results build on earlier findings, suggesting that the mother’s psychosocial history and her perception of the meaning, challenges, and expectations of pregnancy are of paramount importance in the adaptation to pregnancy, and they carry greater weight than demographic factors in predicting birth outcomes.

Although they are conceptually and clinically related, research results suggested a distinction may be warranted between preterm delivery and newborn birthweight. Significant relationships have been reported between life-event stress and infant birthweight, and between a measure of pregnancy-related anxiety (adapted from Lederman’s dimension measures, 1996) and gestational age at birth; both results occurred independent of subjects’ biomedical risk (Wadhwa, Sandman, Porto, Dunkel-Schetter, & Garite, 1993). Socially stressful factors, such as single marital status, little contact with neighbors (Peacock, Bland, & Anderson, 1995), not cohabitating with a partner or having a confidante, and highly stressful major life events (Nordentoft et al., 1996), have been associated with preterm delivery. Paarlberg, Vingerhoets, Passchier, Dekker, and van Geijn (1995) likewise concluded that the most consistent finding in the literature was the relationship between preterm birth and taxing situations.

Low birthweight appears to have a greater association with altered biophysical states. Smoking, hypertension, prenatal hospitalization, and prior preterm birth have been associated with low birthweight (Orr et al., 1996). Paarlberg and colleagues (1999) found that first-trimester smoking and maternal height, weight, and educational level were significant risk factors for low birthweight. M. S. Kramer (1998) found that the strongest predictors of intrauterine growth restriction were smoking and low gestational weight gain. Thus, prior studies suggested that maternal anxiety (pregnancy-specific anxiety, psychosocial adaptive anxiety, and major life-event stress) and maternal coping responses have more associations with preterm labor, whereas chronic stress, smoking, and other physical factors (height, weight, hypertension) may be more consistently related to infants that have restricted growth in utero or are low birthweight. The aggregate of findings suggest different modes of preventive intervention for the two disorders.

Decisions regarding wantedness and acceptance of pregnancy remain relatively stable or constant throughout pregnancy (Lederman, 1996). Not wanting pregnancy is associated with inadequate maternal prenatal care (Albrecht, Miller, & Clarke, 1994) and physical violence (Gazmararian et al., 1995). Women who report an unwanted pregnancy were more likely to have lower birthweight newborns, higher infant mortality rates (Myhrman, 1988), a more than twofold-increased risk of neonatal death (Bustan & Coker, 1994), and children who later developed psychopathology (Ward, 1991).

Studies of motherhood role identification indicate that maternal attachment and parenting confidence showed consistent and stable responses across prenatal and postpartum periods (Deutsch, Ruble, Fleming, Brooks-Gunn, & Stangor, 1988; Fonagy, Steele, & Steele, 1991; Lederman, 1996). Deutsch and colleagues also found that the woman’s relationship with her mother during pregnancy strongly correlated with self-definition of her maternal role.

Kin relationships of the gravida with her husband/partner and mother have relationships to pregnancy outcomes. A lack of social stability, social participation, and emotional and instrumental support increased the mother’s likelihood of giving birth to a small-for-gestational-age infant (Dejin-Karlsson et al., 2000). As in the study by Lederman and colleagues (2002), these results occurred independent of background, lifestyle, and biologi-
Measurement and Scales

The focus of measurement is the quantification of a characteristic or attribute of a person, object, or event. Measurement provides for a consistent and meaningful interpretation of the nature of an attribute when the same measurement process or instrument is used. The results of measurement are usually expressed in the form of numbers. Measurement is a systematic process that uses rules to assign numbers to persons, objects, or events which represent the amount or kind of a specified attribute. However, measurement also involves identifying and specifying common aspects of attributes for meaningful interpretation and categorization, using a common conceptual perspective. Ambiguity, confusion, and disagreement will surround the meaning of any measurement when it is undefined. The measurement relevancy can be determined only when an explicit or implicit theory structures the meaning of the phenomenon to be studied. Qualitative assessments apply measurement principles by providing meaning and interpretation of qualitative data through description and categorization of phenomena. Thus, measurement may not result in scores per se but may categorize phenomena into meaningful and interpretable attributes. Therefore, measurement is also basic to qualitative analysis.

Measurement is a crucial part of all nursing settings. Nurses depend on measuring instruments to determine the amount or kind of attributes of patients and use the results of measurements such as laboratory and physical examination results to determine patient needs and their plan of care. Nurse researchers use a large array of clinical laboratory, observational, and questionnaire measures to study phenomena of interest. Nurse educators depend on measurement instruments and test scores to help determine a student’s mastery. Measurement is central to all that nurses do.

The rules used for assigning numbers to objects to represent the amount or kind of an attribute studied have been categorized as nominal, ordinal, interval, and ratio. These types of measurement scales are common in nursing. Measurements that result in nominal-scale data place attributes into defined categories according to a defined property. Numbers assigned to nominal-level data have no hierarchical meaning but represent an object’s membership in one of a set of mutually exclusive, exhaustive, and unorderable categories. For example, categorizing persons in a study as either female or male is measurement on the nominal measurement scale. In
ordinal-scale measurement, rules are used to assign rank order on a particular attribute that characterizes a person, object, or event.

Ordinal-scale measurement may be regarded as the rank-ordering of objects into hierarchical quantitative categories according to relative amounts of the attribute studied. The categorization of heart murmurs in grades from 1 through 6 is an example. In this ordinal measure, a Grade 1 murmur is less intense than a Grade 2, a Grade 2 less intense than a Grade 3, and so forth. The rankings in ordinal-level measurement merely mean that the ranking of 1 (for first) has ranked higher than 2 (for second) and so on. Rankings do not imply that the categories are equally spaced nor that the intervals between rank categories are equal.

Interval-scale measurement is a form of continuous measurement and implies equal numerical distances between adjacent scores that represent equal amounts with respect to the attribute that is the focus of measurement. Therefore, numbers assigned in interval-scale-measurement represent an attribute’s placement in one of a set of mutually exclusive, exhaustive categories that can be ordered and are equally spaced in terms of the magnitude of the attribute under consideration. However, the absolute amount of the attribute is not known for a particular object because the zero point is arbitrary in an interval scale. The measurement of temperature is a good example of an interval-level measure because there is no true zero point. For example, the zero point is different based on whether the Fahrenheit or Centigrade measurement approach is used, and one cannot say that an object with a temperature of 0°F or 0°C has no temperature at all. Ratio-level measures provide the same information as interval-level measures; in addition they have absolute zero points for which zero actually represents absence of the attribute under study. Volume, length, and weight are commonly measured by ratio scales.

There is controversy about the level of measurement scales and the type of statistical procedures that may be appropriately used for data analysis. There are researchers and statisticians who believe that only nonparametric statistical procedures can be used for data analysis when data are nominal or ordinal and that inferential statistics can be properly applied only with interval and ratio data. There is controversy about whether Likert scaling (which is often used in nursing with measures of attitude or opinion) is in actuality ordinal-level measurement for which only nonparametric statistics should be used. Likert scaling involves having subjects rank their responses to a set of items on a range of numbers, such as “1” to represent lack of agreement to “5” to represent complete agreement. It has been the accepted practice for investigators to use scores generated with Likert-type scales as interval-level data.

Nurses have typically borrowed many measures from other disciplines. This reflects the fact that nursing is a field that considers the biological and psychosocial aspects of care and is based on knowledge generated by many fields of inquiry. Therefore, many instruments developed by other disciplines are consistent with nurses’ measurement needs. However, the heavy dependence on borrowing instruments from other disciplines reflects the trend in the 1970s for nurses to pursue doctoral education in related fields, such as education, psychology, sociology, and physiology. Nurses became familiar with instruments from other fields during their graduate studies and were encouraged to use them in the nursing context.

By the mid 1970s nurses became more cognizant of some of the limitations in borrowing certain instruments from other disciplines. It is not unusual for instruments developed to measure psychosocial variables in other fields to be cumbersome and inefficient for use in the clinical settings of nurse researchers. Often the instruments needed by nurses to measure attributes in populations such as children, frail patients, the elderly, and the culturally diverse, instruments that measure important variables from the nursing perspective, do not exist. Nursing studies of families, communities, and organizations and systems have been hampered by the lack of effective measures to address group and sys-
tem variables from the nursing perspective (Strickland, 1995).

The movement in nursing to develop more rigor in the use and development of measurement instruments gained prominence in the 1970s. In June 1974, a contract was awarded to the Western Interstate Commission for Higher Education by the Division of Nursing, Bureau of Health Manpower, and Health Resources Administration to prepare a compilation of nursing research instruments and other measuring devices for publication. With Doris Bloch as project officer, a two-volume compilation of instruments, titled *Instruments for Measuring Nursing Practice and Other Health Care Variables*, was published in 1978. Priority was placed on compiling instruments dealing with nursing practice and with patient variables rather than nurse variables. This was an important milestone for nursing measurement because it was the first effort that placed a large number of clinically focused instruments developed or used by nurses in the public domain.

During the late 1970s and early 1980s, two groups of nurse scientists focused their work on developing measurement as an area of special emphasis in nursing. At the University of Arizona–Tucson, Ada Sue Hinshaw and Jan Atwood focused their efforts on refining and further developing instruments for clinical settings and for clinically focused research. The first postdoctoral program in nursing instrumentation and measurement evolved at the University of Arizona, and annual national conferences on nursing measurement were offered. These conferences provided nurses a forum in which to discuss measurement issues and problems and to present information on instruments used in studies.

Ora Strickland and Carolyn Waltz at the University of Maryland at Baltimore focused on defining measurement principles and practices to build rigor in nursing research. Careful assessments of nursing research published in professional journals were conducted. The assessments revealed that nurse investigators were not giving adequate attention to reliability and validity issues when selecting and developing instruments. In addition, nurse investigators tended to rely too heavily on paper-and-pencil self-report measures and did not give adequate attention to selecting biological measures as indicated by the conceptual frameworks of the studies (Strickland & Waltz, 1986). The Maryland group published the first measurement textbook for nurses, *Measurement in Nursing Research*, and developed and implemented a measurement project funded by the Division of Nursing of the Department of Health and Human Services. This project prepared over 200 nurse researchers in clinical or educational settings to develop and test instruments for use in nursing and resulted in an award-winning four-volume series of books, *Measurement of Nursing Outcomes*, which compiled instruments developed by project participants.

In 1993, Ora Strickland initiated and edited the *Journal of Nursing Measurement* with Ada Sue Hinshaw as coeditor. This journal brought nursing measurement to a new level of focus, responding to the need for continuing development and dissemination of nursing measurement instruments and providing an identifiable forum for the discussion and debate of measurement concerns and issues of interest.

The nursing profession has developed nursing measurement to a great degree between the late 1970s and the present. Nurses have developed and tested instruments for use in a variety of settings. In addition to creating new instruments, nurses have further developed instruments designed in other disciplines for use in nursing studies. Although much has been done, much remains to be done in nursing measurement.

Ora L. Strickland

**Medications in Older Persons**

Due to increased life expectancy, older age is associated with the prevalence of multiple comorbidities (e.g., congestive heart failure, chronic obstructive pulmonary disease, diabetes mellitus), which often necessitate life-
long and multiple medication intake. Consequently, older persons are the largest consumers of medication. Polypharmacy is worrisome in the elderly because of the increased risk for adverse events. Moreover, polypharmacy may result in nonadherence to the therapeutic regimen, a factor found to be associated with poor outcomes in view of physical and psychological health. Adherence needs to be monitored as a clinical parameter during each clinical encounter. Evaluating older person’s capabilities and risk-factors for successful management of the medication regimen should be part of a thorough geriatric assessment as a cornerstone of chronic illness management. Nurses play an important role in this assessment and assist older persons and their families in the management of and adherence to their medication regimen.

Older persons are the largest per capita consumers of medications. Several international studies show that persons older than 65 years account for 15%–18% of the population, but consume 40%–50% of prescribed drugs (Klauber, 1996; Linjakumpu et al., 2002; Swafford, 1997). Prevalence of polypharmacy increases with higher age and number of concomitant comorbidities (Lijankumpu et al., 2002; U.S. Agency for Healthcare Research and Quality, 1996). In two recent large-scale studies, it was noted that 11%–25% of older persons use five or more medications simultaneously (Chen, Dewey, & Avery, 2001; Linjakumpu et al., 2002).

Polypharmacy is worrisome in view of the increased risk for adverse events as this may be associated with poor outcomes in view of poor physical and psychological health. It has to be noted that, secondary to higher age or multiple chronic diseases, older persons are most vulnerable to pharmacokinetic, pharmacodynamic, and homeostatic changes (Raik, 2001). These changes make them particularly sensitive to adverse events, interactions, and toxicity of medications. Older persons are also at greater risk for inappropriate prescribing. The average clinician often lacks sufficient knowledge regarding possible drug-drug interactions. In addition, a lack of information regarding medication prescriptions ordered by other providers serves as a significant factor in increasing the complexity of the therapeutic regimen. Every new drug added to the medication regimen will increase the risk for adverse outcomes (Raik).

Suboptimal use of prescribed medications is often associated with unplanned hospitalizations among the chronically ill: 28.1% of visits in an emergency department were due to medication-related visits, and 63.35% of hospital admissions due to drug reactions could have been prevented (Mc Donnell & Jacobs, 2003). Furthermore, the risk of medication mishaps is higher in the older population due to errors in self-administration, caused in part by visual and cognitive impairment, illiteracy, high medication costs, the complexity of the medication regimen, duration of treatment, and/or side effects of the medications (Raik, 2001).

Adherence is defined as the extent to which a person’s behavior (taking medications, following a recommended diet, and/or executing lifestyle changes) corresponds with the agreed recommendations of a health care provider (Haynes, McDonald, Garg, & Montague, 2003). In persons aged 60 years or older, nonadherence with medication regimens varies from 26% to 59% (Van Eijken, Tsang, Wensing, de Smet, & Grol, 2003), numbers that are very similar to those of younger populations. Nonadherence with drug treatment is highly prevalent in all chronic patient populations among different age groups and is not more prevalent in older normally aging persons, as is sometimes wrongly stated.

Because nonadherence has been found to be associated with poor outcomes, adherence needs to be monitored as a relevant clinical parameter during each clinical encounter. Clinicians can use direct as well as indirect methods to assess adherence with medication regimens. Direct methods refer to assay of medication, medication by-products or tracers in bodily substances (e.g., digoxin, phenobarbital), and observation of medication administration. Indirect measurement methods are self-report, collateral report, prescription refills, pill-count, and electronic event moni-
toring. Yet there is no gold standard to evaluate adherence with a medication regimen, as all methods have specific drawbacks in view of underestimating of nonadherence or the lack of revealing medication-taking dynamics. Electronic event monitoring (EEM) has emerged as the most valid and reliable method to date. EEM consists of a pill bottle fitted with a cap that contains a microelectronic circuit. The date and time of each bottle opening and closing are recorded as a presumptive dose. Recorded data can be downloaded to a computer that lists and graphically depicts individual medication-taking dynamics. Indirect, electronic event monitoring has superior sensitivity compared to other direct and indirect methods, as it allows assessment of noncompliance at a continuous level and in a multidimensional manner (De Geest, Abraham, & Dunbar-Jacob, 1996).

A number of processes associated with aging may negatively influence older persons’ ability for independent and correct medication management and prevent adherence. Knowledge of risk-factors for nonadherence will allow identification of older patients at risk for inadequate medication management. Modifiable factors can be targeted for adherence-enhancing interventions. A selection of factors with special relevance for the older population will be discussed next.

Aging is associated with decline in auditory, visual, cognitive, and functional capacities. It can be more difficult for older persons to handle childproof caps, blister packages, or nebulizers, or to swallow large pills. Adherence to medication regimens requires, among other abilities, reading labels and distinguishing tablets according to their color. Nineteen percent of persons aged 70 years and older have visual impairments, including blindness; one third have hearing impairments (Desai, Pratt, Lentzer, & Robinson, 2001). Labels may be misread and colors of pills may not be recognized. Reading difficulties with regard to prescription labeling was not significantly related to nonadherence in seniors, although 38.8% were not able to read all the prescriptions labels and 67.1% did not fully understand all information (Maison, Gaudet, Gregorie, & Bouchard, 2002), admittedly restricting options for adequate medication management. Older persons have to be aware of the intended effect of the medication, how to administer it, possible side effects, and other relevant aspects of the medication regimen. A significant proportion of the older population has inadequate or marginal functional health literacy, making it difficult to process the health information and instructions given to them.

Although cognitive decline is associated with aging, in the absence of pathophysiological decline such as Alzheimer disease, cognitive functioning of older persons is normally sufficient to independently manage their own medication regimen (Park et al., 1999). Forgetfulness is a common reason for nonadherence in older persons; however, severe cognitive impairment most compromises patients’ abilities to independently manage their treatment regimen. Cognitively impaired persons are more likely to receive assistance with medication management compared to cognitively intact subjects (Conn, Taylor, & Miller, 1994).

Treatment-related factors such as duration, complexity, and cost of medication regimens can also negatively affect adherence. Medication restriction, i.e., taking less medications than prescribed, is common in seniors who lack prescription coverage, particularly among certain vulnerable groups (Steinman, Sands, & Covinsky, 2001). The fact that many older persons live alone and are relatively socially isolated deprives them of necessary social support and places them at risk for depression, both of which are known risk factors for medication nonadherence (De Geest, von Renteln-Kruse, Steeman, Degraeve, & Abraham, 1998).

Compliance-enhancing interventions should be built on the available empirical evidence of modifiable risk-factors and intervention studies. Evidence shows that compared with single, generalized, and short interventions, multifaceted, tailored, and continuous interventions result in improved medication adherence (Haynes, McDonald, Garg, & Montague, 2003; Peterson, Takiya, & Finley,
Menstrual period and menstrual cycle are not one and the same: menstrual period refers to the days that a woman bleeds. An average length of a period is 5 days; about half of all women bleed for 3–4 days and another 35% bleed for 5–6 days (Voda, Morgan, Root, & Smith, 1991). The term menstrual cycle (or menstrual cycle interval) refers to the span of time from the start of one period to the start of the next. The length of a menstrual cycle can range from 21 to 35 days, with 29 days as the average.

Successful management of medication regimens in older persons requires an understanding of the risks associated with polypharmacy and specific factors associated with the aging process that put patients at risk for nonadherence. Interventions aiming at supporting older persons and their families with regard to medication-taking further should be multifaceted and tailored along the continuum of chronic illness management.

Menstrual Cycle

The menstrual cycle is a truly gender-specific process that has a profound effect on women’s lives. When viewed in the general context of biological rhythms, the menstrual cycle requires a complex sequence of physiological events coordinated by the hypothalamus in conjunction with the pituitary glands, ovaries, and uterus, along with the adrenal and thyroid systems, and that adapts to environmental phenomena.

Derived from the Latin *mensis* (month), the menstrual cycle is marked by the shedding of the uterine lining—menstruation, or a menstrual “period.” We start menstruating at 11–12 years of age (menarche) and have our last menstruation at about 51 years (menopause). With a few interruptions, such as pregnancy or taking the Pill, women will have about 400 periods during their lifetime.
chosocial, behavioral, cultural, or health factors. Nursing science and scholarship have contributed new conceptual models, advanced research methods, and new interventions that link therapeutics with advocacy.

Nurse investigators have explored phenomena such as beliefs and attitudes among menarcheal girls, menstrual cycle characteristics and premenstrual changes among adult women, experiences typical of menopausal transition among midlife women, as well as examining the menstrual cycle experiences in populations seldom studied, such as disabled women, athletes, shift workers, toxic exposures in oncology nurses, diabetic women, and beyond those of gynecology clinic populations to the broader spectrum of healthy community samples. They have contributed to work complementing biomedical research in describing physiologic patterns across the menstrual cycle, developing diagnostic categories and criteria for phenomena such as dysmenorrhea, premenstrual syndrome, premenstrual dysphoric disorder, and therapies for problems related to menstruation and menopause.

Nurses with a concern for women’s health have historically included feminist approaches in their clinical practice as well as their research. Angela McBride (McBrine & McBride, 1981) was one of the first nurse scholars to embrace feminist theory as a research paradigm, calling for a reframing of gynecological disease within the greater context of a woman’s everyday life. The early nursing literature related to the menstrual cycle reflects a definition of health grounded in everyday life (gynecology) and not just clinical definitions of health such as risk factors and diseases (gynecology) (McBrine, 1993). Nurses have focused their study on biopsychosocial response patterns, normative or developmental transitions, functional status, role performance, adaptation to environmental demands, and high-level wellness (Woods, 1988). Nursing research has helped to focus women’s development and normative transitions (menarche and menopause) as normal rather than deficiency conditions that need medical treatment (Andrist & MacPherson, 2002). Feminist methods of inquiry have been expanded by nurse researchers to provide information “for” women rather than merely “about” women. For example, nurse investigators’ use of methods such as researcher-in-relation, reflexivity, and social transformation to understand women’s perimenstrual and menopausal symptom experiences provides the basis for women-centered therapeutics.

In the past decade, multidisciplinary efforts have increased our power to institute change in women’s health status through cross-disciplinary research, building on the wisdom of early pioneers. For example, the Society for Menstrual Cycle Research (SMCR), a multidisciplinary organization with strong nursing leadership, has been the vanguard of the movement away from a reductionist perspective to a more comprehensive approach to the study of women’s health (SMCR web site). Since 1977, the Society’s published research conference proceedings have provided an invaluable chronology of research on the menstrual cycle and advanced thinking across several disciplines: nursing, psychology, sociology, epidemiology, anthropology, biostatistics, physiology, medicine, and literature (SMCR web site). Instead of a circumscribed phenomenon peculiar to sex hormones, the Society defined the menstrual cycle in the context of other biorythms of human variability or a sociocultural network of meanings, and of a new understanding of how the endocrine system interacts with other functions.

Nursing research has been at the forefront in the study of normative experiences of menstrual cycle events. Menarche presents nurses with a unique opportunity to address health promotion issues, particularly those related to reproductive and sexual health of school-age girls. In a review of nursing research contributions to menstrual cycle research (Woods, Mitchell, & Taylor, 1999), investigators addressed images of menstruation presented to menarcheal girls, menstrual attitudes, symptoms, and the relationship of recalled menarcheal experiences and attitudes to adult women’s subsequent experiences of
symptoms. Since the last Encyclopedia of Nursing Research review by Reame, Medline and CINAHL searches yielded 34 published papers related to menstrual function and alterations related to daily activities, menstrual attitudes and knowledge, and preparation for menarche across multiple cultures. In contrast to the last review, the cultural and ethnic context is addressed by nurse researchers more than by other disciplines. These studies of menarcheal experiences and programs for menarcheal preparation in 12 cultures, including African-American girls, provides an expansive understanding of the developmental opportunity presented by menarche. More recently, nurses have been at the forefront of translating research to practice in the development of menstrual health advocacy groups (Red Web Foundation) and internet-based education (www.redspot.org).

Early efforts to understand the normative experience of menstruation and menstrual symptoms as illness experiences have included studies of healthy community-based populations of women. From these studies, we have been able to estimate the normative experiences of women and identify some that are idiosyncratic.

The Tremin Trust Database, first administered by Ann Voda at the University of Utah and now at Pennsylvania State University, represents a national resource of information about women’s menstrual cycles that includes data from over 5,000 women spanning four generations (Voda, 1991). From the Tremin Trust Database it is possible to follow women from menarche through menopause and in some instances to do so for three generations. This database has provided important information about menstrual cyclicity across the reproductive years, length of cycles and bleeding episodes, regularity, and estimates of menopause.

Since the early 1980s, nurse researchers have expanded the scope of explanatory models and methods for menstrual cycle research. Woods and colleagues have systematically examined how symptoms synchronized to the menstrual cycle are influenced by the context of social class, education, race, marital status, self-esteem, occupation, and menstrual attitudes (Woods, Most, & Longenecker, 1985). They have documented the dynamic nature of symptom formation across and within individuals in response to their changing social environments (Taylor, Woods, Lentz, & Mitchell, 1991).

A by-product of nursing studies has been the development of improved designs and methods for the biobehavioral assessment of menstrual cycle phenomena (Woods, Most, & Dery, 1982; Shaver & Woods, 1986; Taylor, D., 1990; Mitchell, Lentz, & Woods, 1991; Reame, Kelch, Beitins, Yu, Zawacki, & Padmanabhan, 1996; Woods, Mitchell, & Lentz, 1999; Mitchell, Woods, & Mariella, 2000; Woods, Mitchell, & Mariella, 2002). Such methods have included the measurement of menstrual flow absorbency, assessment of perimenstrual symptom patterns and cluster types, statistical methods for handling the detection of LH pulsatile secretion, and comparison of daily menstrual symptoms across cycles of the same individual. The Washington Women’s Daily Health Diary includes a menstrual symptom severity list of positive and negative experiences. It has been used by several nurse researchers to define a variety of menstrual cycle symptom patterns, including menarcheal and menopausal experiences.

Nursing research on menopause, like that on the menstrual cycle, has emphasized studies of normative experiences. A review of the literature contains rich descriptions of symptoms associated with menopause, including studies of hot flashes, sleep problems, and depression (Woods, Mitchell, & Taylor, 1999). In addition, nurses have focused on the meanings of menopause, women’s attitudes toward the experience, and the social context in which it occurs and how the social context modifies the experience. In a recent review of nursing research on the menopausal transition, Andrist and MacPherson (2002) demonstrated that nursing research has helped to refocus women’s development and developmental transitions as normal rather than deficiency conditions that need medical treatment. Nursing scholars have also fo-
cused on the experience of menopause across cultures (George, 1996; Punyahotra & Street, 1998; Meleis & Park, 1999; Berg & Taylor, 1999), studies of decision processes women use in arriving at a commitment to use (or not use) hormone therapy (Rothert & O’Connor, 2002), and more recently on nonhormonal symptom management strategies (Cohen, Rousseau, & Carey, 2003).

Nursing research results reflect a wide range of studies with women seeking care in clinical settings as well as community-based populations of women. Comorbidity in these samples remains a challenge, as does accounting for the influences of oral contraceptives, other drugs, psychiatric history, age, ovulatory status, and characteristics of the menstrual cycle. Encouraging is the promotion of the menstrual cycle as the “fifth vital sign” to be incorporated into all women’s health assessment.

There is only beginning work focusing on biological changes surrounding menarche and in relation to symptoms. More studies of menarcheal preparation are needed to provide young girls with optimum preparation for healthy experiences of menstruation and their sexuality. The type of information girls need, beyond how to cope with the hygienic challenge of menstruating, is yet to be defined. Psychoeducational interventions for school-age girls provided by school nurses is an area for continuing study.

What is needed for future menopause-related research are studies of health education interventions, such as those designed to reduce women’s uncertainty about the experience. In addition, primary care models of therapeutics for menopause are needed. There is an acute need to find nonpharmacological and culturally-appropriate options for symptom management for symptoms such as hot flashes and sleep disturbances.

DIANA L. TAYLOR

Mental Disorders Prevention

The prevention of mental disorders is based on a science that examines the incidence, prevalence, causes, and consequences of public health problems and the development, evaluation, refinement, and dissemination of interventions intended to prevent the occurrence or reoccurrence of those problems (Coie et al., 1993; Institute of Medicine [IOM], 1994). Among the tenets underlying the science of prevention is that many mental disorders result from environmental stressors that place individuals and communities at risk. Moreover, dysfunctional intra- and interpersonal patterns that evolve from social and health disparities contribute toward the development of mental health problems (Albee, 1996). However, behavioral strategies can be powerful preventive interventions that block the onset or recurrences of mental disorders.

The goal of preventive intervention is to reduce malleable risk factors and/or enhance protective processes. Risk factors are those attributes or circumstances that contribute to an individual’s vulnerability (National Institute of Mental Health [NIMH], 1998a). The likelihood of developing a mental disorder increases for adults with each additional risk factor that they possess or encounter. Among children, each additional risk exponentially raises their susceptibility to mental disorders (Reiss, D., & Price, 1996). Protective processes, on the other hand, are the compensatory resources that moderate or even mollify the negative consequences of adversity (IOM, 1994). Protective factors include individual attributes such as an easy temperament, above-average intelligence, competency skills, and a supportive family environment. The resiliency of children is enhanced by effective parenting and the involvement of other caring adults. For adults, a supportive marital relationship can be protective.

Two major classifications of mental health preventive intervention exist. The first evolved from a public health perspective (IOM, 1994). Primary prevention is intended for individuals who do not have mental health problems, but who wish to gain greater competence. Secondary prevention is intended for individuals and families who are at risk for developing mental disorders because
they live in communities with more than one environmental stressor. Appropriate participants in secondary preventive intervention include those individuals who are experiencing mild or moderate psychological symptoms, but who are not in crisis. Tertiary prevention is directed at those who are in crisis. The goal of such intervention is to prevent psychiatric hospitalization or incarceration. Once the crisis is past, such individuals and families should be directed to primary or secondary intervention programs to sustain or enhance their adaptational outcomes.

Another classification is derived primarily from the mental health field (IOM, 1994). Universal preventive interventions are directed at populations of individuals. McClowry (2003) used a translational approach to provide low-risk consumers with a self-help parenting manual. Selective prevention is intended for individuals, families, and communities who are at risk for the development of mental disorders. Nies, Chrusical, and Hepworth (in press) engaged inner-city women in a walking exercise program to enhance their health and reduce their level of stress. Indicated interventions are for those high-risk individuals who have biological markers or who have experienced early psychological symptoms of a mental disorder that has not reached a DSM-IV diagnostic level. Schepp and colleagues (1999) reported on an indicated intervention for adolescents who are diagnosed with schizophrenia.

Preventive science is an expansive multidisciplinary field comprised of researchers and clinicians who often work in teams to capitalize on their various types of expertise. Moreover, prevention scientists employ a wide range of qualitative and quantitative strategies to examine the multiple and interacting causes related to prevention issues. Epidemiological and other descriptive studies identify how risk factors and protective processes are related to mental disorders. The results from such studies subsequently inform interventionists about the mechanisms that are related to the disorder that they are trying to prevent. Interventionists also need to be aware of the cultural implications of the problem or disorder. Partnership with the relevant stakeholders is critical to assess the cultural appropriateness of the program (McClowry, Mayberry, Snow, & Tamis-LeMonda, 2004).

The timing of prevention programs is essential for maximizing effectiveness. The optimal time is before dysfunctional behaviors are established (Coie et al., 1993). Transitional times that occur during the life course are particular periods during which individuals and families are vulnerable. The birth of a child or the death of a family member are just two examples of such normative experiences that are transitional and thus lend themselves to preventive intervention.

Prevention science and its related interventions are consistent with the nursing profession. Nurses have a history of being engaged in prevention activities, often labeling them “anticipatory guidance” or “health promotion” (McClowry et al., 2004). Examples of such clinical services include suicide, domestic violence, or drug-abuse prevention, HIV education, pregnancy prevention, and bereavement support. Other prevention programs include parenting programs aimed at reducing child neglect or abuse and those aimed at supporting caregivers of chronically ill or elderly family members.

Nurses engaged in preventive services, however, are unfortunately experiencing the same challenges that face other disciplines in the field. The time restraints imposed by the current health care system compromises the amount of time many health care providers can spend with their clients. Since most types of preventive services are not reimbursable from third-party payers, a danger exists that preventive intervention will be further reduced due to the current health care environment. As patient advocates, nurses will need to work diligently to make sure preventive services remain accessible to health care consumers.

A recent report on prevention science (NIMH, 1998a) identified recommendations for future initiatives that will advance the field. A higher level of funding dedicated to preventive intervention and the related basic
prevention science topics is essential. The prevention field especially needs to strengthen its epidemiologic foundations and expand the number of interventions that have been evaluated empirically. Preventive intervention programs often lack standardization and, too frequently, have been inadequately tested to determine whether they are achieving their intended outcomes. Demonstration of the efficacy of prevention programs supports the fact that this type of research is valuable and worthy of additional funding.

Challenges, however, are embedded in expansion of the field. Coordination across federal, state, and private agencies will be difficult to achieve, but necessary to assure that duplication of services is avoided and that the highest quality of programs are developed and tested. Findings should be disseminated so that constituents, funding agencies, and policy makers are kept informed of the developments of the field.

Although the prevention field has expanded rapidly over the last decade, highly qualified researchers and interventionists are still needed. Nurses are particularly well prepared to contribute toward a recent emphasis on the comorbidities between mental and physical disorders. The ideal way to prepare nurses to engage in such research and to be prevention interventionists is the same as for other professions—interdisciplinary courses, mentoring, and opportunities for collaboration.

SANDRA GRAHAM MCCLOWRY

Mental Health in Public Sector Primary Care

Primary care was first comprehensively defined by the World Health Assembly following a seminal conference in Alma-Ata in 1977 (Health for All by the Year 2000). Building upon the key aspects of Alma-Ata, the 1978 World Health Organization emphasized the defining aspects of primary care as essential, first-level health care embedded in the community, available to all, evidence-based, socially acceptable, and affordable. In the U.S., this optimistic vision for high-quality primary care has been only partially achieved. Ongoing challenges to high-quality primary care services are especially pronounced for public sector primary care. Public sector primary care services serve disproportionate numbers of health care users who have limited ability to pay for health services and experience significant health disparities. Both economic barriers to care and health disparities—inequalities in health care related to race and ethnicity (Institute of Medicine, 2003b)—are key priorities for research on improving health services. These issues cut across all areas of public health need, including mental health services.

Also in the late 1970s, the primary care setting became formally recognized as the de facto mental health services system in the U.S. Of the minority of individuals who receive needed mental health services, most receive their services in primary care instead of the mental health specialty sector. Many people seen in primary care for medical problems have significant clinical comorbid mental health conditions (Miranda, Hohmann, Atkinson, & Larson, 1994), especially anxiety, depression, and substance-misuse disorders. The burden of unmet mental health needs is higher for racial and ethnic minorities compared to whites (U.S. Department of Health and Human Services, 2001b). Significant barriers exist to accessing public sector health services, including the affordability of care, social stigma associated with mental illness, and fragmented care delivery systems acting as barriers to care when care is sought (U.S. Department of Health and Human Services). Recent changes in the financing of public health care services for cost-containment reasons may have further exacerbated health disparities by creating heightened barriers to effective community-based care (Leigh, Lillie-Blanton, Martinez, & Collins, 1999), including primary care services. These issues in the quality and access to primary health care services are particularly problematic in public sector primary care mental health.
A central goal of contemporary mental health services research is to generate new knowledge directed to the transformation of mental health services to achieve high-quality, accessible, recovery-oriented care for all (President’s New Freedom Commission on Mental Health, 2003). Some significant progress toward this goal has been achieved over the past decade. Tests of interventions for primary care mental health care have been evolving in recent years from primarily efficacy assessments to effectiveness assessments. In effectiveness assessments, understanding what approaches work for which populations and individuals under what set of circumstances becomes of central importance. Effectiveness research also involves testing interventions in populations that experience significant health disparities and other barriers to high-quality health care. Examples of primary care research topics funded by the National Institute of Mental Health (NIMH) include incorporating sociocultural aspects of mental health care delivery, managing complex comorbid conditions, access to and acceptance of mental health services, effectiveness of mental health care delivered in “usual care” primary care settings, and quality of mental health care processes in relation to treatment guidelines and outcomes (NIMH, 2003).

As primary care research continues to evolve to better address issues of health disparities and mental health care delivery models for primary care settings, there are key opportunities for nurse researchers. Nurse researchers have the potential to make significant contributions to mental health services and interventions research for redesigned primary care mental health services in two key areas. The first area concerns testing models of care for common mental health issues within the primary care setting that are tailored in ways acceptable for various high-needs populations and which can be shown to be both effective and cost-effective. In general, consistent with other bodies of clinical literature in medicine and other fields, the nursing literature on managing mental health issues in primary care (especially depression) has burgeoned over the past decade. However, there are still very few tests of nursing interventions using advanced practice nurses (such as nurse practitioners and mental health clinical nurse specialists) to manage mental health issues in “usual care” primary care and community-based settings. This is especially so for public sector primary care with populations that are most underserved and which experience health disparities. Recent examples of research with underserved populations include the work of Hauenstein (1996) to test a nursing intervention for managing major depression in rural women, and Torrisi and McDanel (2003) on the participation of two urban nurse-managed centers in a depression collaborative to improve care for depression.

The second area of research opportunity concerns evaluations of now rapidly evolving “blended roles” for advanced practice nursing, nursing roles in which medical and mental health skills are available in the same primary care provider (Williams, C. A., et al., 1998). Advanced practice nurses who effectively “blend” medical and mental health training are well-positioned to manage the holistic needs of the patients they see in primary care settings. For example, Lyles and others (2003) reported on the use of nurse practitioners trained to manage the medical and mental health needs of primary care patients with medically unexplained symptoms. These types of blended roles need additional research testing for combinations of comorbid health conditions most commonly seen in primary care settings.

Emily J. Hauenstein
Updated by Celia E. Wills

**Mental Health Services Research**

Mental Health Services Research (MHSR) is a relatively new, evolving area of health services research that focuses on access to, costs of, and quality of mental health care services within diverse health care delivery systems and socio-politico-cultural contexts (Na-
tional Institute of Mental Health [NIMH], 2003). The importance of MHSR to inform improvements to public health services has become increasingly recognized in recent years, especially as mental disorders recently have been shown to be a leading cause of disability in the U.S. and worldwide (Office of the Surgeon General, 1999; World Health Organization, 2001). MHSR generates new knowledge directed to the transformation of mental health services to achieve high-quality, accessible, recovery-oriented care for all (President’s New Freedom Commission on Mental Health, 2003). In MHSR, the methods of general health services research are applied to examining a diverse range of topics such as: sociocultural aspects of mental health care delivery; access to and acceptance of mental health services; effectiveness of mental health care delivered in “usual care” settings; economics and financing of mental health services; and, quality of mental health care processes in relation to treatment guidelines and outcomes (NIMH).

MHSR is interdisciplinary and integrative of the expertise of researchers in diverse fields, including psychiatric-mental health nursing, psychology, psychiatry, social work, anthropology, sociology, economics, biostatistics, health administration, and public policy. Broad interdisciplinary research expertise is needed for the diverse range of health services research topics that require the integration of literature from multiple fields, construction of complex research designs and data collection protocols, and the use of sophisticated approaches to data analysis. Research funding for MHSR is supported by multiple sources, including local, state, and federal. At the federal level MHSR is especially supported by the NIMH Division of Services and Intervention Research (DSIR). Most academically-based federally-funded research centers for mental health services research are led by nonnurse researchers. An exception is the Southeastern Rural Mental Health Research Center (SRMHRC) at the University of Virginia School of Nursing, which began in 1992 supported by NIMH funding and continues its focus on unmet mental health needs in rural settings.

Distinctions between interventions (treatment) and services research are somewhat vague (see NIMH’s Bridging Science and Service report, 1998b). However, during the past decade, nurse researchers have most often focused on mental health interventions (treatment efficacy and effectiveness) research as opposed to broader service systems research. MHSR programs led by nurses remain uncommon, in parallel with the small number of nurses entering psychiatric nursing (Delaney, K., Chisholm, Clement, & Merwin, 1999) and the very limited numbers of nurses with doctoral and postdoctoral training in mental health services research. Relatively few doctoral programs in nursing prepare students to conduct MHSR. In 2001, in recognition of the need to increase the numbers of mental health services researchers, the American Psychiatric Nurses Association (APNA) facilitated the initiation of a postdoctoral mental health mentorship program, “Building the Capacity of Psychiatric Mental Health Nurse Researchers,” cosponsored by the National Institute of Nursing Research and the National Institute of Mental Health (Cochrane, 2001). This program included a Phase I technical workshop on knowledge and skills for preparing grant applications, and a follow-up phase in which a concept paper was prepared and a mentoring plan developed to prepare a full grant application for review by NINR or NIMH. The current supply of mental health services researchers remains low in relation to present and projected future needs. There remains an urgent need to increase the supply of doctorally-trained nurses with funded MHSR research programs to improve the key contribution of nursing to this growing field.

Results of MHSR appear in journals publishing mental health services research, such as the Archives of Psychiatric Nursing, Issues in Mental Health Nursing, the Journal of the American Psychiatric Nurses Association, the Journal of Psychosocial Nursing and Mental Health Services, Mental Health Services Research, and Psychiatric Services, as well as
Mental Status Measurement: The Mini-Mental State Examination

Individualized assessment of cognitive status is necessary for the planning and evaluation of nursing care to determine the patient’s capacity to understand instructions, be an active participant in his/her care, make health care decisions, and detect changes that will determine subsequent nursing actions. It is especially important to assess the cognitive status of elders who may have an undetected mild cognitive impairment or delirium; for example, assessing baseline cognitive status of hospitalized elders would allow early detection of side effects from receiving a new medication or of postoperative delirium. The Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975) is frequently used as a clinical assessment in a variety of settings and for preliminary screening of elders for neurodegenerative disorders such as Alzheimer’s disease (AD).

The MMSE was developed over 30 years ago for serial testing of the cognitive mental state of patients on a neurogeriatric ward. The MMSE was specifically developed to be a formal and relatively thorough clinical evaluation tool that is brief and easy to administer, and consists of eleven tasks of cognition:

1. orientation to time and place
2. registration assessed by ability to learn the names of three unrelated objects
3. attention and calculation by performing serial sevens or spelling the word “world” backwards
4. recall by naming the three objects previously learned
5. language assessed by six items of naming objects, following verbal and written commands, writing a sentence spontaneously, and
6. visual-spatial ability by copying two intersecting pentagons. The tester asks the patient to respond to items and records the score for each. Item scores are added to provide the MMSE score, which can range from 30 (all correct) to 0 (no correct) responses.

Before conducting an MMSE assessment, the nurse should make the patient comfortable and establish rapport. The test is not timed but usually takes 5–10 minutes. During the testing, the nurse should praise success and attempt to enhance cooperation by not pressing on items the patient finds difficult. The testing situation may be an embarrassment for patients who are aware that they are “missing” some of the items (Mahoney, Volicer, & Hurley, 2000) and the nurse needs to be sensitive to this phenomenon and protect the self-esteem of such patients while preserving the integrity of the testing procedures to assure administration accuracy.

The degree to which the MMSE is reliable and valid is critical to the interpretation of scores. The tester needs to follow the administration procedures exactly. The MMSE is considered to have satisfactory psychometric properties. Initial reliability and accuracy by measuring consistency in the items and different raters were adequate for interrater agreement and retest stability when two sam-
Mental Status Measurement: The Mini-Mental State Examination

Examples of patients and several test administrators were compared (Folstein, Folstein, & McHugh, 1975). Validity, the degree to which the MMSE measures the construct of cognitive impairment, was supported by convergent and discriminant validity comparing hypothesized similarities/differences between scores from three groups of participants: normal, demented, and depressed subjects with and without cognitive symptoms. Age and education may influence test scores (Butler, S. M., Ashford, & Snowdon, 1996) in that elders and persons with low education may score slightly lower yet have higher cognitive capacity, so there are MMSE test norms based on these variables (Crum, Anthony, Bassett, & Folstein, 1993). After many years of use in several studies, a score of 23 points or less is considered to be preliminary evidence of cognitive impairment and grounds for further evaluation (Cockrell & Folstein, 1988).

Clinically, scores on the MMSE should be considered with other assessment data to provide clinicians with an estimate of patients' cognitive capacity to make treatment and research decisions. MMSE scores are one of several neuropsychological test results used to assess the need for and/or efficacy of cognitive enhancing medications for persons with AD. In the research arena, the MMSE is used both as an enrollment criterion as well as to describe project participants, enabling comparisons across studies.

At least reliability and if possible validity estimates of instruments used in particular studies should be reported each time the instrument is used in a study. Over 30 years of use of the MMSE in reported studies illustrates the stability of the initially reported psychometrics. The MMSE has been translated into several languages and modifications have been made for versions that are culturally and linguistically appropriate (Folstein, 1998).

Our research team has used the MMSE in all our studies conducted since 1990 with persons who have AD and found measurement properties of interrater reliability to be adequate by rater agreement (Volicer, Hurley, Lathi, & Kowall, 1994) and internal consistency to be acceptable by examination of Cronbach’s alpha (Hurley, Volicer, Hanrathan, Houde, & Volicer, 1992; Mahoney, E. K., et al., 1999; Camberg et al., 1999). Our experience shows that research assistants can easily learn to administer the MMSE, are accurate and consistent in its administration to patients following training, and do not upset patients when using it. Because the MMSE is used in so many studies, it is almost incumbent on researchers to include the MMSE to characterize subjects so that consumers of research have a benchmark of cognitive capacity for comparing results across studies.

The MMSE is a brief scale that can be administered to patients who have very different levels of cognitive impairment, from no impairment to being quite impaired. However, once a patient scores “0,” the MMSE does not quantify the cognitive differences that can exist between patients who all score “0.” If it is important to clearly characterize research participants in an AD project, another scale such as the Bedford Alzheimer Nursing Subscale (BANS) (Volicer et al., 1994) does allow additional discrimination of dementia severity for subjects who “bottom” on the MMSE. Because the MMSE does not measure executive function, the MMSE alone should not be used as an enrollment criterion in AD research, but should be combined with additional neuropsychological tests.

The lack of complexity in administration leads to high levels of rater reliability—a very important feature. The MMSE can be scored without need for a calculator or computing scores and the total can be entered onto the patient’s record or data. Despite ease of administration and scoring of the MMSE, reliability checks need to be in place and testers should periodically be observed for accuracy. For example, one item asks the patient to follow a standardized 3-stage command, not three sequential single commands. During rater training for our research projects, we have found that some testers wanted the patient to do well and needed to be corrected for imprecisely administering (giving three se-
Sequential commands versus one 3-stage command) and scoring (“It was so close”).

The MMSE is a brief screening test and scores were never intended to be a proxy for AD severity or to provide a cut score rule for determining when an individual has the capacity to provide informed consent. MMSE scores provide a useful and objective assessment for nurses in a wide range of clinical situations.

Ann Hurley
Ladislov Volicer

Mentoring

A formal definition of mentoring is a spontaneous pairing by two individuals or a grouping of two or more individuals who feel they can assist each other in professional and sometimes personal growth. The mentor–mentee relationship tends to evolve and endure for the rest of one’s career and consists of counseling, teaching, networking, and coaching. Vance and Olson (1998) described mentoring as a developmental and caring support or connection between two people which assists with socialization at each stage of a mentee’s career.

More and more nurses are seeing the benefits of having an expert-to-novice relationship both as an expert as well as a novice. Certainly the advantages to the novice are clear. Mentors see the experience as an extremely positive opportunity to expand their own vision, and at the same time, impact the profession by assisting in shaping future nurse leaders. The health care organizations employing the mentors view the experiences as a favorable and cost-effective recruitment and retention tool, which ultimately improves job satisfaction and morale. With the current interest in acquiring Magnet Status for hospitals and health care organizations, the concept of providing staff and new graduates with ongoing mentoring relationships will flourish. Professional organizations such as the American Association of Critical Care Nurses and Sigma Theta Tau International also encourage their experienced and new members to pair up in a variety of activities such as: starting new local chapters, developing evidence-based protocols, preparing for a leadership role, and conducting clinical research. Higher education uses mentoring models to connect their students to practicing and experienced alumni and to friends or partners of the university.

Most mentees see the person who eventually becomes their mentor as a role model. Role modeling has been used in nursing pedagogy to improve interpersonal skills and impact change as well as with clinical skills (Kolb, 1982). Whether the experience is labeled an internship, externship, apprenticeship, fellowship, preceptorship, or mentorship, the fact remains that an experienced person is facilitating the role transition of an inexperienced individual to some extent. The degree of success of this growth is influenced by many variables including: the selection method of mentors, the way the assignment of mentees is determined, the readiness of the mentee to assume the formal as well as the informal knowledge from the mentor, and the organizational culture that surrounds the mentor–mentee relationship.

The process of an experienced individual coaching, guiding, or mentoring a novice has frequently been cited in nursing as a mechanism of building leadership skills (Vance & Olson, 1998; Grossman & Valiga, 2000; Bennentts, 2000; Peluchette & Jenaquart, 2000). Many of these labeled mentorships are actually preceptorships since they are an assigned relationship that is part of a course assignment or a component of job orientation. There are multiple peer, professional, and faculty mentorship publications in the literature that focus on specific skill acquisition over a set, prescribed time frame (Suen & Chow, 2001; Price & Balogh, 2001; Lloyd Jones, & Walters, 2001). Some of the skills include acquiring: new communication strategies for success as a nurse, methods to enhance creative abilities, all types of clinical skill building, and mechanisms to facilitate research and publications. In nursing it is also
accepted that nurses can have different mentors during the various stages of their careers.

Due to our tumultuous health care environment it is more imperative than ever that nurses gain self-confidence, a goal that can be achieved by becoming competent not only with clinical skills but also with leadership skills such as negotiation, creative thinking, communication, and collaboration. In order to achieve this confidence nurses need to be mentored or guided by experienced nurses who can provide clinical knowledge and skills, practice with leadership and management skills, as well as psychosocial support. Having a mentor can assist a nurse to gain insight into their ability to impact change, think creatively, empower themselves and others, and acquire various skills to prepare themselves for a successful career as well as to strengthen the nursing profession (Grossman & Valiga, 2000).

Meta-analysis is a quantitative approach that permits the synthesis and integration of results from multiple individual studies focused on a specific research question. Meta-analysis was first introduced in 1976 by Glass, who referred to it as an analysis of analyses. A meta-analysis is a rigorous alternative to the

Meta-Analysis

Meta-analysis is a quantitative approach that permits the synthesis and integration of results from multiple individual studies focused on a specific research question. Meta-analysis was first introduced in 1976 by Glass, who referred to it as an analysis of analyses. A meta-analysis is a rigorous alternative to the
traditional narrative review of the literature. It involves the application of the research process to a collection of studies in a specific area. The individual studies are considered the sample. The findings from each study are transformed into a common statistic called an effect size. An effect size is a measure of the magnitude of the experimental effect on outcome variables.

Once the results from each study have been converted to a common metric, these findings can be pooled together and synthesized. The most common effect size indicator is $r$, which is the Pearson product moment correlation. Another effect size indicator is the $d$ index. Cohen’s $d$ is the difference between the means of the experimental and control groups divided by the standard deviation. Cohen (1988) has provided guidelines for interpreting the magnitude of both the $r$ and $d$ effect size indicators. For the $r$ index, Cohen has defined small, medium, and large effect sizes as .10, .30, and .50 or more, respectively. For the $d$ indicator an effect size of .2 is considered small, .5 is medium, and .8 or more is large.

Approaches are available to examine and reduce bias from operating within a meta-analysis. Some ways that biased conclusions can occur in a meta-analysis are effects of a bias toward publishing positive but not negative results, giving each study an equal weight in the meta-analysis despite the fact they differ in sample size or quality, inclusion of multiple tests of a hypothesis from an individual study, and not ensuring an acceptable level of agreement or reliability among raters in coding the study characteristics.

The possibility that unknown, unpublished studies may exist, whose results fail to support the pattern illustrated by the published findings, is referred to as the file drawer problem (Rosenthal, 1979). The conclusions of the meta-analysis can be distorted if the retrieval of studies yielded only published studies in which a publication bias in favor of significant results may occur. R. Rosenthal developed a technique to assess the magnitude of the file drawer problem by calculating the minimum number of unpublished studies with nonsignificant results that would be necessary to change the conclusion reached by the meta-analysis.

It can be argued that not all studies synthesized in a meta-analysis should be given equal weight. Some studies may be poorly designed and have small unrepresentative samples, whereas other studies use randomized control group designs with large sample sizes. To remedy this problem, studies can be evaluated and assigned a quality score. The meta-analysis can then be calculated with studies weighted by their quality scores.

A source of nonindependence in a meta-analysis can result from using multiple hypothesis tests based on multiple variable measurements obtained from a single study (Strube & Hartman, 1983). One suggested remedy when selecting findings obtained from multiple measures of the hypothesis tests located within a single study is to collapse the various findings into a single, global hypothesis test.

One assumption that should be met before specific studies are quantitatively combined in one meta-analysis is that each study provides sample estimates of the effect sizes that are representative of the population effect size. Homogeneity tests can be calculated to identify any outlier studies. If outliers are identified, they can be removed.

Meta-analysis first appeared in the nursing literature in 1982, when O’Flynn published her article describing meta-analysis in the “Methodology Corner” of Nursing Research. A meta-analysis of the effects of psychoeducational interventions on length of postsurgical hospital stay (Devine & Cook, 1983) was the first meta-study analysis published in nursing. Since then meta-analyses have been conducted and published in a wide variety of areas, such as patient outcomes of nurse-practitioners and nurse-midwives, job satisfaction and turnover among nurses, relationship between postpartum depression and maternal-infant interaction, effects of educational interventions in diabetes care, quality of life in cardiac patients, and nonnutritive sucking in preterm infants.
The outcome of this quantitative approach for reviewing the literature has tremendous potential for a practice-based discipline such as nursing. One example of a meta-analysis that has consequences for nursing practice integrated the research on predictors of postpartum depression. C. T. Beck’s (1996) meta-analysis of 44 studies helped to clarify which variables were significantly related to postpartum depression; there had been conflicting findings reported in the literature. The following eight variables were revealed to be significant predictors: prenatal depression, history of previous depression, social support, life stress, child care stress, maternity blues, marital satisfaction, and prenatal anxiety. An instrument based on the findings of this meta-analysis can be designed to help detect women at risk for developing postpartum depression.

Meta-analysis of the abundance of research being conducted can benefit nursing practice. Not only will the use of meta-analysis further knowledge development in the discipline of nursing, but it also can help nurses in the clinical setting to decide whether to apply research findings to their practice based on the size of the difference an intervention makes. Meta-analysis can resolve issues in nursing where there are multiple studies with conflicting findings. In addition, meta-analysis highlights gaps in nursing research for future studies.

CHERYL TATANO BECK

Middle-Range Theories

Middle-range theories are described by Merton (1968, p. 9) as those “that lie between the minor but necessary working hypotheses that evolve in abundance during day-to-day research and the all-inclusive systematic efforts to develop unified theory.” He goes on to say that the principal ideas of middle-range theories are relatively simple. Simple here means rudimentary, straightforward ideas that stem from the focus of the discipline. Thus middle-range theory is a basic, usable structure of ideas, less abstract than grand theory and more abstract than empirical generalizations or micro-range theory. Middle-range theory is a set of related ideas that are focused on a limited dimension of the reality of nursing. These theories are composed of concepts and suggested relationships among the concepts that can be depicted in a model. Middle-range theories are developed and grown at the intersection of practice and research to provide guidance for everyday practice and scholarly research rooted in the discipline of nursing.

In 1999, a review of a decade of nursing literature identified the existing foundation of middle-range nursing theory (Liehr & Smith, 1999). To locate this literature, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) was searched using the terms “middle-range theory,’’ “mid-range theory,’’ and “nursing.’’ All papers written in English were evaluated according to four inclusion criteria: 1) the theory’s author identified it as middle-range in the paper, 2) the theory name was accessible in the paper, 3) concepts of the theory were explicitly or implicitly identified, and 4) the development of the theory was the major focus of the paper (Liehr & Smith, p. 83).

Twenty-two theories, published from 1988 to 1998, met these criteria and were addressed. Seven were published between 1988 and 1992, and 15 were published between 1994 and 1998 (Liehr & Smith, 1999). The 22 middle-range theories were grouped as high, middle, and low relative to each other based on the generality or scope of the theory as determined by the name of the theory. Six of the 22 were high-middle, 7 were at the middle range, and 9 were grouped as low-middle (Liehr & Smith). It was recommended that persons creating middle-range theory: (a) describe clearly the theory name and how it was generated, (b) clarify conceptual linkages with a model, (c) articulate the research-practice links, and (d) tie the theory to the disciplinary perspective of nursing.

A 2001 CINAHL search using the same search terms and the same criteria for inclusion resulted in identification of 14 new mid-
Middle-range theories published from 1998 through 2001. Two of the theories on the list of 14 (Precarious Ordering: Theory of Women’s Caring and Experiencing Transitions) are referred to as “emerging” by their authors, indicating that they are in early stages of development (Smith, M. J., & Liehr, 2003). Four of the theories (Enlightenment, Family Health, Urine Control, and Pathway to Chemical Dependency in Nurses) were derived from grand theories of nursing or other middle-range theories (Smith, M. J., & Liehr).

The 14 middle-range theories were grouped as high, middle, and low relative to each other based on the generality or scope of the theory as determined by the name of the theory. One theory (Enlightenment) was high-middle; 7 were at the middle range (At-tentively Embracing Story, Comfort, Cultural Negotiation, Experiencing Transitions, Family Health, Investing in Self-Care, and Truthful Self-Nurturing); and 6 were grouped as low-middle (Caring Through Relation and Dialogue for Patient Education, Family Dynamics of Persons with Chronic Pain, Pathway to Chemical Dependency in Nurses, Precarious Ordering: Theory of Women’s Caring, Prevention as Intervention, and Urine Control Theory) (Smith, M. J., & Liehr, 2003, pp. 11–17).

All middle-range theories are works in progress. It is to be expected that middle-range theories change over time as they are applied to guide practice and research. Theories are published so that others can critique, test, revise, and use them as a source of scholarly productivity in research and practice. The 8 middle-range theories that follow cover a broad spectrum, including ones that were proposed decades ago and have been used extensively, to those that are newly developed and just beginning to be used. Some of the theories were originated by nurses and some were originally created by persons outside of nursing. Middle-range theories are offered as starting points for nurses wishing to structure their practice and research. With these theories comes a challenge to stretch the boundaries of thinking, consider the rub between each theory and what is known from experience, and apply the theories so that the body of nursing knowledge remains a vibrant, relevant foundation for guiding practice and research.

Community Empowerment Middle-Range Theory

The middle-range theory of community empowerment was developed by Cynthia Armstrong Persily and Eugenie Hildebrandt (2003). This theory evolved from participatory action research (Hildebrandt, 1994, 1996) and is an amalgamation of theories related to community development and empowerment. It is based on the premise that improving the health of people rests in programs that enable active participation of members of the community to take responsibility for their own health (Persily & Hildebrandt). Community development is embedded in models advocating the development of strength and confidence of community people while they are working on problems they have identified (Persily & Hildebrandt).

The purpose of the theory is to provide a framework for interventions at individual and community levels; it “explicates for nursing the direct transfer of knowledge and expertise from nurse professionals to lay people to promote health” (Persily & Hildebrandt, 2003, p. 111). The theory offers a community involvement process to augment the knowledge and health care decision-making potential of persons living in the community.

There are three major concepts in the theory. The concepts are: involvement, “a linking of people in the community to identify needs, resources and barriers;” lay workers, “trained persons who share backgrounds with persons in the community;” and reciprocal health, “actualization of inherent and acquired human potential” (Persily & Hildebrandt, 2003, pp. 113–114).

A model of the middle-range theory of community empowerment is depicted as the involvement of lay workers in the promotion
of health (Persily & Hildebrandt, 2003, p. 117). When considered together, the concepts explain the potential for empowerment of community people through the involvement of lay workers in promoting reciprocal health. Lay workers in the community work with health care professionals to increase access and extend opportunities to promote health. This partnership of lay community members with professional providers offers opportunities to facilitate community involvement and attain reciprocal health.

Hildebrandt (1994) applied the theory in participatory action studies in South Africa with an exploratory descriptive design aimed at meeting the health needs of black South Africans in a township setting. Indigenous lay workers diminished the barriers of distrust, race, and language. Identified needs were: health knowledge, diagnostic screening, literacy training, and food through gardening. Findings of the study revealed that lay workers and health care personnel effectively responded to basic human health needs with all age groups in the community; it took a considerable investment of time and resources to introduce community involvement; and it was fitting to empower lay people in the promotion of community health.

Application of the theory of community empowerment in advanced practice nursing offers widespread opportunities to promote health. Some applications include: organizing lay community members to become involved in strategies to provide access to health care clinics to empower persons who have difficulty with transportation in rural areas, educating lay resource mothers to be involved in the care of empowering pregnant women during and after delivery, and involving older lay members of the community in different community roles to empower frail elder persons who live alone (Persily & Hildebrandt, 2003, p. 121). Each of these applications of the theory offers the potential to increase community competence and empower the community through the process of structuring community participation with lay workers to promote reciprocal health.

This theory offers a beginning foundation for future development through practice and research. Use of the theory in advanced practice nursing provides opportunities to develop the potential of a community by realizing achievement of outcomes that empower reciprocal health for individuals and groups. Identifying research questions related to the theory can structure the design of studies that will test and refine the theory.

This theory should be a part of the education of undergraduate and graduate students to enhance the awareness of community empowerment. Teaching students to apply theory in practice will give direction to their care and advance their understanding of theory-based practice.

**Family Stress and Adaptation Middle-Range Theory**

Family Stress and Adaptation theory is derived from a framework known as the Double ABCX Model of family adaptation (McCubbin, H. I., & Patterson, 1982). This middle-range theory, which has its roots in sociology, developed over decades beginning with the study of family response to war following World War II (LoBiondo-Wood, 2003). The original theory included the concepts of stressor event, family existing resources, and family perception of the stressor contributing to a crisis; additions to the theory over time included postcrisis variables, such as pile-up, coping, and adaptation; most recently the model has been configured to include resiliency (LoBiondo-Wood). “All of these conceptualizations add important pieces to the puzzle of what the family is and how it functions and adapts in periods of tranquility as well as upheaval” (LoBiondo-Wood, p. 93). LoBiondo-Wood notes five underpinning assumptions which address: (1) hardships as natural aspects of family life; (2) basic family strengths that protect the family unit and foster growth when families are faced with change; (3) basic and unique competencies to protect the family unit and foster recovery in
the face of unexpected stress; (4) connection with communities to give and receive resources during stress and crisis; (5) work to restore order and harmony when families are faced with crisis demanding change. The assumptions and concepts of this theory make it applicable to nursing, when nurses are seeking a structure for guiding practice and research focused on family stress and adaptation.

The key concepts of the middle-range theory of family stress and coping are stressor, existing resources, perception of the stressor, crisis, pile-up, existing and new resources, family perception of the stressor, coping and adaptation (LoBiondo-Wood, 2003). Stressors are family hardships; existing resources include intrafamilial and community sources of support; perception of the stressor is the meaning assigned to the hardship by the family; crisis is the demand for family change; pile-up is the effect experienced when change is confronted over time; existing and new resources refer to evolving opportunities for facing the hardship; family perception of the stressor is the meaning assigned to the total experience of facing the hardship; coping is an active process of using resources; and adaptation is the outcome of this middle-range theory, suggesting that the family has accommodated (LoBiondo-Wood).

LoBiondo-Wood (2003) notes strengths and weaknesses of this middle-range theory. Central strengths are that the theory focuses on the family as a whole and has multiple instruments developed to address the concepts of the theory. Family Stress and Adaptation theory is unique in this way because the instruments have been specifically created to measure the ideas of the theory and psychometric data are available for the existing instruments. From a negative perspective, the theory has a large number of concepts and sometimes the concepts are not well distinguished from each other (LoBiondo-Wood). For instance, the reader may have noticed that in the listing and description of the concepts, perception of the stressor appears twice with little to distinguish one concept from the other. Examination of the model indicates that the first appearance of “perception of the stressor” occurs precrisis while the second appearance, entitled “family perception of the stressor,” occurs postcrisis. This pre- to postcrisis view is another strength of the theory. Even though the pre- to postcrisis view contributes to complexity and a cumbersome structure, it provides a longitudinal perspective, enabling application to situations which are changing over time, as most health problems are. “The model calls upon nurses not only to be able to understand the processes and stages of the illness, but also how families respond to the illness trajectory” (LoBiondo-Wood, p. 106).

In spite of this strength of providing a longitudinal perspective, when the theory is used for research the researcher often selects specific variables from the model rather than using the whole model (LoBiondo-Wood, 2003). LoBiondo-Wood (2003) and colleagues have used the model to study children undergoing liver transplant, employing the Family Inventory of Life Events & Changes (FILE) to address pile-up; the Family Inventory of Resource Management (FIRM) to address existing and new resources; the Coping Health Inventory for Parents (CHIP) to address coping; the Family Coping Coherence Index (FCCI) to address perception of the stressor; and the Family Adaptation Device (FAD) to address adaptation. It is apparent from this list of instruments which operationalize theory concepts that the theory of Family Stress and Adaptation is very amenable to use by researchers. The theory has provided a wealth of instruments for testing family response to chronic illness. The model, extensions, and conceptual distinctions may seem cumbersome, but when the model is broken down and the elements that are consistent with a problem are delineated, the measurement and testing of hypotheses can be accomplished. (LoBiondo-Wood, p. 107)

In spite of years of research and continued development of the Family Stress and Adaptation theory, LoBiondo-Wood (2003) has identified several areas for continued study,
such as examination of the fit of ethnicity and culture and consideration of new definitions of family, where parents may be same-gender individuals or individuals from two generations who come together to coparent a child. The middle-range theory of Family Stress and Adaptation is a valuable structure for guiding nursing research and practice and it could be an asset to undergraduate and graduate students learning to care for families in crisis. Further, nursing research could effectively contribute to the areas in need of further development, making this middle-range theory even more relevant for the sociocultural context of today’s families.

**Middle-Range Theory of Meaning**

The middle-range theory of meaning evolved out of the work of Victor E. Frankl (1984) who used the theory to administer to persons with problems of a psychological nature. Patricia L. Starck (2003) used the theory for application to average human beings who are coping with the stresses of everyday life and significant life-changing events. The theory can also be applied with groups and communities.

There are three major concepts in the theory. These concepts are life purpose, freedom to choose, and human suffering. Life purpose is defined as “that to which one may feel called to and to which one is dedicated” (Starck, 2003, p. 129). Finding a purpose is related to the changing meaning in life. Freedom to choose is “the process of selecting among options over which one has control” (Starck, p. 132). Human suffering is “a subjective experience that is unique to an individual and varies from simple discomfort to anguish and despair” (Starck, p. 133). The relationship among the concepts “suggests that meaning is a journey toward life purpose with the freedom to choose one’s path in spite of inevitable suffering” (Starck, p. 134).

Starck (2003) identifies four instruments that have been used in research and practice to quantify meaning. These instruments are: the Purpose in Life Test, Seeking of Noetic Goals Test, Meaning in Suffering Test, and the List of Values. Research has been conducted with hospice patients and families, breast cancer patients, persons with HIV/AIDS, a physically disabled population with people who had a permanent spinal cord injury, and with persons in a nursing home (Starck, pp. 135–138). These research studies focused on how the experience of intense suffering is related to the search for meaning and finding purpose in life.

Logotherapy is described as a method “to help persons separate themselves from their symptoms, to tap into the resources of their noetic dimension, and to arouse the dynamic power of the human spirit” and is a contrast to psychotherapy (Starck, 2003, p. 139). Three logotherapeutic approaches are identified by Starck as useful for application of the theory of meaning to nursing practice. These are dereflection, paradoxical intention, and Socratic dialogue. Dereflection is the “act of de-emphasizing or ceasing to focus on a troublesome phenomenon, issue, or problem; it is putting this issue aside” (Starck, p. 139). It is believed that dereflection strengthens one’s capacity for transcending the problem and finding a greater purpose. Paradoxical intention is “intentionally acting the opposite to one’s desired ends, thereby confronting one’s fears and anxieties” (Starck, p. 140). Paradoxical intention distances one from the triggers of the problem, thus neutralizing the triggers and breaking the cycle of fear. Socratic dialogue is a “conversation of questions and answers, probing deeply into existential issues such as one’s values. It is a rhetorical debate to trigger a change in attitude, behavior or both” (Starck, p. 141). In the dialogue, there is a conversation punctuated by probing questions to facilitate a deeper level of awareness.

This theory should be a part of the education of undergraduate and graduate students to enhance the awareness of the importance of finding meaning and purpose in one’s suffering. Teaching students to apply theory in practice will give direction to their care and advance their understanding of theory-based practice.
Self-Efficacy Middle-Range Theory

The theory of self-efficacy, which was originally developed by Bandura (1977), is based on social cognitive theory. The theory conceptualizes person-behavior-environment interaction as triadic reciprocity, the foundation for reciprocal determinism. . . Triadic reciprocity is the interrelationship among person, behavior and environment; reciprocal determinism is the belief that behavior, cognitive and other personal factors and environmental influences all operate interactively as determinants of each other. (Resnick, 2003, p. 49)

Early work by Bandura and colleagues attempted manipulation of the level and strength of an individual’s self-efficacy to effect behavioral change (Resnick). Self-efficacy theory is at the middle range of abstraction, appealing to nurses who are interested in a conceptual structure which will guide practice and research focused on behavioral change. To say the theory is at the middle range means that it is more complex than simple hypotheses and yet targeted enough to be applicable. Self-efficacy is defined as “an individual’s judgment of his or her capabilities to organize and execute courses of action” (Resnick). The major concepts of self-efficacy theory are self-efficacy expectations and outcome expectations. Resnick describes self-efficacy expectations as judgments about one’s own ability to accomplish a particular task; outcome expectations are judgments about what will transpire if a particular task is successfully accomplished. “Self-efficacy and outcome expectations were differentiated because individuals can believe that a certain behavior will result in a specific outcome; however, they may not believe that they are capable of performing the behavior required for the outcome to occur” (Resnick, p. 51). For instance a smoker might believe that her frequent bouts of bronchitis would diminish if she would stop smoking; however, she may not believe that she is able to stop. In this instance, expected outcomes are dependent on self-efficacy judgments. Resnick also describes times when outcome expectations are dissociated from self-efficacy expectations (behavior change is loosely linked or not linked to outcomes). For example, dissociated expectations would occur if the smoker previously discussed believed that her bronchitis was related to the geographic area where she lived. In this instance, smoking is not firmly linked to bronchitis symptoms in the mind of the smoker, influencing likelihood of attempting behavior change.

Resnick (2003) discusses four information sources which influence judgment about one’s self-efficacy: (1) enactive attainment—actual performance of the desired behavior, (2) vicarious experience—watching others who are similar to self perform the desired behavior, (3) verbal persuasion—encouragement by others, noting the individual’s capability for performing the desired behavior, and (4) physiological feedback—bodily experience while performing the desired behavior. Each of these information sources becomes an avenue for nursing intervention to affect behavior change in practice or to study behavior change in research. In addition to information sources which may influence self-efficacy, experience interacts with individual characteristics and environment to affect self-efficacy and outcome expectations.

Resnick (2003) reports that within the decade more than 400 articles in nursing journals incorporate self-efficacy theory when addressing behavior change. These articles cover a broad range of topics including the education of nurses and parental training, but the majority of these articles have been related to chronic health problems and participation in health-promoting activities, such as exercise, smoking cessation, and weight loss. Resnick herself has used self-efficacy theory to develop interventions such as the WALK (Walk, Address unpleasant symptoms, Learn about exercise, Cueing to exercise) intervention, the Exercise Plus Program, and the Seven Step Approach to Developing and Implementing an Exercise Program. She has used the theory to guide research intended to influence elders’ participation in functional
activities and exercise (Resnick). When measuring self-efficacy, scale items query respondents’ confidence (0 = not confident; 10 = very confident) regarding specific factors that might affect behavior change. “The development of appropriate self-efficacy and outcome expectation measures enables the testing of interventions designed to help participants believe in the benefits and overcome the challenges of performing selected activities” (Resnick, p. 60).

In less than 30 years since Bandura introduced self-efficacy theory, it has been widely used by professionals from many disciplines. Its usefulness for nursing stems from its relevance for health promotion through behavioral change. The theory could offer valuable guidance for undergraduate and graduate students who wish to teach patients about changing health behaviors; it would provide an evidence-based framework for selecting potentially effective teaching strategies. Self-efficacy is a mature middle-range theory, which has been tested through research and has demonstrated application for practice. Since most of the research on the theory has focused on self-efficacy expectations (Resnick, 2003), there continues to be a need for studying outcome expectations and the relationship between self-efficacy and outcome expectations. Nursing is well positioned to lead the way with continuing development of this middle-range theory to promote further understanding of factors influencing health-promoting behavior change.

**Self-Transcendence Middle-Range Theory**

The middle-range theory of self-transcendence was developed by Pamela G. Reed (1991, 1996, 2003) to provide an understanding about enhancing well-being for any person in a life situation where there is an increase in the awareness of vulnerability and mortality. The two assumptions underpinning the theory of self-transcendence are that human beings are integral with their environment and capable of an awareness that extends beyond temporal/spatial dimensions, and that self-transcendence is an innate human characteristic that necessitates expression and the realization of full potential (Reed, 2003).

Reed (2003) makes the case that the theory is grounded in research and theories on postformal thinking, which is reasoning about life situations that is more pragmatic, spiritual, and tolerant of ambiguity. When engaging in postformal thinking, a person integrates experience as an expanded awareness of the moral, social, and historical context of life. There is an enhanced appreciation of self and life.

There are three concepts that make up the theory. These concepts are self-transcendence, well-being, and vulnerability. Self-transcendence, a major concept of the theory, is defined as the capacity to expand self boundaries intrapersonally (toward greater awareness of one’s philosophy, values, and dreams), interpersonally (to relate to others and one’s environment), temporally (to integrate one’s past and future in a way that has meaning for the present), and transpersonally (to connect with dimensions beyond the typically discernible world). (Reed, 2003, p. 147)

Well-being is defined as a “sense of feeling whole and healthy, in accord with one’s own criteria for wholeness and health” (Reed, p. 148). Vulnerability is defined as “awareness of personal mortality” (Reed, p. 149). The relationship between self-transcendence and vulnerability is nonlinear in that very low and very high levels of vulnerability are unrelated to increased transcendence. The relationship between self-transcendence and well-being is direct and positive when the outcome indicator of well-being is positive.

The Self-Transcendence Scale developed by Reed (1991) has been used in research related to the theory. Reed (2003) reports research focused on well elders, elders who were hospitalized for treatment of depression, the oldest-old (80 to 100 years of age),
healthy adults, and adults facing end-of-life experiences with advanced breast cancer and AIDS (Reed, 2003, pp. 152–156). These studies demonstrated the consistent finding that transcendence was related to outcome indicators of well-being. In addition, Reed (2003) cites several dissertation studies on self-transcendence. It can be concluded that there is significant research providing support that self-transcendence is related to well-being across a diversity of human health experiences.

The theory has been used in nursing practice that aims to facilitate self-transcendence in bereavement, in caregivers of adults with dementia, sobriety, and in primary care situations (Reed, 2003, pp. 158–161). Intrapersonal strategies, interpersonal strategies, and transpersonal strategies for enhancing self-esteem are proposed (Reed). Intrapersonal strategies include: meditation, prayer, visualization, life review, and journaling. It is believed that these strategies assist a person to look inward to clarify and expand an understanding about self and the meaning of a situation. Positive self-talk and involving oneself in challenging activities can help a person to heal, grow, and transcend beyond an illness experience (Reed). Interpersonal strategies include: support groups, altruistic activities, and group psychotherapy. Support groups enable people to connect with each other around a challenging life event and enhance self-transcendence through sharing experiences and reaching out to help and be helped by others. Transpersonal strategies include facilitating the connection with a power greater than self (Reed). Providing an environment where a person can look beyond self toward a higher power for help can promote self-transcendence.

Self-transcendence is a theory at the middle range of abstraction, appealing to nurses who are interested in a conceptual structure which will guide practice and research focusing on enhancing well-being. This theory should be a part of the education of undergraduate and graduate students to enhance an awareness of self-transcendence. Teaching students to apply theory in practice will give direction to their care and advance their understanding of theory-based practice.

**Story Middle-Range Theory**

Story theory, which was originally titled “Attentively Embracing Story” (Smith, M. J., & Liehr, 1999), proposes that story is a narrative happening of connecting with self-in-relation through nurse-person intentional dialogue to create ease. The authors of this middle-range theory recognize story as a fundamental dimension of human experience and nursing practice (Smith, M. J., & Liehr, 2003b). All nursing encounters occur within the context of story. The stories of the nurse, patient, family, and other healthcare providers are woven together to create the tapestry of the moment—the unfolding story about a complicating health challenge. The idea of story is not new to nursing but has been explicitly or implicitly incorporated into theories, used as an intervention, or as a source of research data (Smith, M. J., & Liehr, 2003b).

Story theory calls attention to the human story as a health story in the broadest sense, structuring concepts to provide one perspective of the place of story in health promotion. The theory is based on three assumptions which underpin the conceptual structure. The assumptions state that people: (a) change as they interrelate with their world in a vast array of flowing connected dimensions, (b) live in an expanded present moment where past and future events are transformed in the here and now, and (c) experience meaning as a resonating awareness in the creative unfolding of human potential (Smith, M. J., & Liehr, 2003b). The three concepts of the theory are connecting with self-in-relation, intentional dialogue, and creating ease. Intentional dialogue is the central activity between nurse and person which brings story to life as a health-promoting endeavor.

Intentional dialogue is querying emergence of a health challenge story in true presence. It is purposeful engagement with another to summon the story of a complicating health challenge (Smith, M. J., & Liehr,
Intentional dialogue demands that the nurse come to the other with full attention to learn the meaning of a complicating health challenge through abandoning pre-existing assumptions, respecting the storyteller as the expert who knows the meaning, and querying vague story directions to clarify what is being shared.

Connecting with self-in-relation occurs as reflective awareness on personal history. It is an active process of recognizing self as related with others in a developing story plot uncovered through intentional dialogue (Smith, M. J., & Liehr, 2003b). To connect with self-in-relation, people see themselves not as isolated individuals but as existing and growing in a context, which includes awareness of other people and times, sensitivity to bodily expression, and a sense of history and future in the present moment.

In following the story path, the nurse encourages reckoning with a personal history by traveling to the past to arrive at the story beginning, moving through the middle, and into the future all in the present, thus going into the depths of the story to find unique meanings that often lie hidden in the ambiguity of puzzling dilemmas. (Smith, M. J., & Liehr, 2003b, p. 171)

Creating ease is re-membering disjointed story moments to experience flow in the midst of anchoring (Smith, M. J., & Liehr, 2003b). The re-membering creates a space of fit where one can anchor even for only a moment. Paradoxically, anchoring is accompanied by flowing as energy surfaces with the coming together of story moments into a comprehensible whole and there is movement toward resolving the complicating health challenge.

Story theory comes to life in research and practice through complicating, developmental, and resolving processes, essential elements of all stories.

When gathering health story data, the complicating process focuses on a health challenge that arises when there is a change in the person’s life; the developmental process is composed of the story-plot that links to the health challenge and suffuses it with meaning; and the resolving process is a shift in view that enables progressing with new understanding. (Smith, M. J., & Liehr, 2003b, p. 173)

Each time a nurse engages a patient to learn about what matters, story theory is applicable. By abandoning preexisting assumptions, respecting the storyteller as the expert, and querying vague story directions, the nurse intentionally engages the other, enabling connecting with self-in-relation to create ease. When the foremost intention of the nurse is caring-healing, the nurse queries the story about “what matters” to a unique individual culminating in a distinct story of how one person is living a presenting health challenge. The distinct story enables nursing care which is fine-tuned to uniqueness, addressing what is most important from the perspective of the patient.

A health story gathered for the purpose of scholarly inquiry represents a different foremost intention. When scholarly inquiry is the intention, the nurse has posed a research question about a particular health challenge and the participant is queried to understand how the health challenge has been lived. Regardless of the intention, caring-healing or scholarly inquiry, stories are gathered with a focus on essential story processes: complicating health challenge, developing story-plot, movement toward resolving. The only quality that distinguishes the caring-healing from the scholarly inquiry intention is where the intentional dialogue begins—either with what matters most as identified by the patient or with a phenomenon addressed in the research question developed by the nurse. Regardless of intention, story-plot can be pursued by drawing structures like a family tree or story path (Smith, M. J., & Liehr, 2003b, p. 175). Likewise, with either intention, movement toward resolving is possible as the storyteller is immersed in sharing a health challenge experience with someone who really cares to listen. “Finding a center of stillness and letting go of busyness and distractions energizes
mindful attention to the story and propels movement toward resolving” (Smith, M. J., & Liehr, p. 176).

A story of a health challenge gathered for the purpose of scholarly inquiry demands a research strategy based on a research question. M. J. Smith and Liehr (2003b) propose approaches for qualitative and quantitative analyses of story data. They are pioneering the dual analyses (qualitative and quantitative) of a single set of stories, suggesting that dual analyses may provide the most meaningful direction for practice, further theory development, and continued research. Qualitative approaches for use in dual analyses include any qualitative method in which stories have been gathered and audio-recorded for transcription. Quantitative analysis is accomplished with narrative analysis software, Linguistic Inquiry and Word Count (LIWC), using the transcriptions prepared for qualitative analysis (Smith, M. J., & Liehr).

Research and practice have contributed to the development of story theory, establishing the middle-range foundation for the theory. Since the theory’s publication in 1999, the authors have been developing methods guided by the theory. The real test of any theory, especially a middle-range theory, occurs as it is used to guide practice and research. By this criterion, story theory is in early stages of growth, but the theory is well-positioned for use by nurses who share a belief about the central place of story for the discipline of nursing and it is well-positioned for use with undergraduate and graduate students who are seeking guidance about engaging patients to talk about a health challenge.

Uncertainty in Illness Middle-Range Theories

Two middle-range theories of uncertainty in illness were developed by Merle Mishel. The original uncertainty in illness theory (Mishel, 1988) addressed the diagnostic and treatment phases of illness and the reconceptualized uncertainty in illness theory (Mishel, 1990) addressed living with continuous uncertainty, be it a chronic illness or an illness that may reoccur. Mishel refers to these theories as UIT for the uncertainty in illness theory and RUIT for the reconceptualized uncertainty in illness theory (Mishel & Clayton, 2003). The theories can be applied to the experience of ill persons, caregivers, and parents of children who are ill as well as to all age groups.

Uncertainty is defined as “the inability to determine the meaning of illness-related events occurring when the decision maker is unable to assign definite value to objects or events and/or is unable to accurately predict outcomes” (Mishel & Clayton, 2003, p. 29). They identify three major themes in the UIT. These themes are: antecedents of uncertainty, appraisal of uncertainty, and coping with uncertainty. The antecedent theme is composed of stimuli frame (symptom pattern, event familiarity, and event congruence), cognitive structure providers (resources available). The appraisal of uncertainty is composed of inference (based on personality dispositions, experience, knowledge, and context), and illusion (beliefs that have a positive outlook). Coping with uncertainty is composed of danger (possibility of a harmful outcome), opportunity (possibility of a positive outcome), coping (reducing and managing uncertainty), and adaptation (usual range of biopsychosocial behavior). The proposed health outcome related to the UIT is adaptation and the regaining of personal control of one’s life. Mishel’s model of the UIT (Mishel & Clayton, p. 30) shows linear relationships among the themes with no feedback loops. The model depicts uncertainty resulting from antecedents with the major pathway going through the stimuli frame variables that have been influenced by cognitive capacities.

The RUIT “includes the antecedent theme in the UIT and adds the two concepts of self-organization and probabilistic thinking” (Mishel & Clayton, 2003, p. 31). Mishel and Clayton describe self-organization as the structuring of a new sense of order that comes from the acceptance of uncertainty as a natural life rhythm. Probabilistic thinking is a pat-
pattern of thinking incorporating a conditional view of the world. The RUIT sets forward “four factors that influence the formation of a new life perspective. These are prior life experience, physiological status, social resources, and health care providers” (Mishel & Clayton, p. 31). On the basis of this theory it can be concluded that a person comes to a different view of the continuous experience of uncertainty in illness that goes on through time. The health outcome of the RUIT is the expansion of consciousness. Mishel’s model of the RUIT (Mishel & Clayton, p. 33) shows a spherical configuration over time representing repatterning and reorganization resulting in a different view of uncertainty in illness.

Mishel published an Uncertainty in Illness Scale in 1981 and the scale has been frequently used to study the experience of uncertainty for persons in acute or chronic illness situations. Mishel and Clayton (2003, pp. 34–38) report research that directly supports elements of the UIT, such as symptom pattern, event congruence, event familiarity, social support, credible authority, appraisal, coping, and adjustment to uncertainty. They note that the RUIT has less frequently been used for research and support, for the RUIT has come from qualitative studies of people with chronic illness (Mishel & Clayton, p. 38).

Within the last decade, an uncertainty management intervention was evaluated in four clinical trials with persons with breast cancer and prostate cancer (Mishel & Clayton, 2003). The intervention was based on the UIT and implemented with weekly telephone calls. The intervention demonstrated effectiveness for teaching skills to manage uncertainty, teaching problem solving, improving cognitive reframing, enhancing patient-provider communication, and improving the management of the side effects of cancer treatment (Mishel & Clayton).

Mishel and Clayton (2003) propose substantive direction for practice guided by the theories and tested in research. Use of the two theories in practice offers opportunities for nurses to understand, address, and manage sources of uncertainty in illness for patients. Providing well thought out information directly related to uncertainty is a way of providing structure to the stimuli frame. Communication with patients experiencing uncertainty by providing contextual cues, such as what will be heard and felt during procedures, is a way to reduce ambiguity and increase understanding. Uncertainty is a human response to the illness experience that is found in the frontlines of nursing practice. These theories directly relate to the planning of care to reduce or prevent uncertainty for persons with acute or chronic illness.

These theories can enhance the education of undergraduate and graduate students by bringing awareness of uncertainty in illness to routine care planning. Teaching students to apply theory in practice will give direction to their care and advance their understanding of theory-based practice.

**Unpleasant Symptoms Middle-Range Theory**

The middle-range theory of unpleasant symptoms was created for application with a broad range of diseases whenever unpleasant symptoms demand nursing attention. The original theory was published nearly a decade ago (Lenz, Suppe, Gift, Pugh, & Milligan, 1995) as a result of collaboration between faculty and graduates of the doctoral program at the University of Maryland School of Nursing. Each of the graduates had studied an unpleasant symptom for dissertation research. Gift had studied dyspnea; both Milligan and Pugh had studied fatigue (Lenz & Pugh, 2003). The individuals who developed the theory had collaborated in dyads or triads on various empirical studies and theoretical articles. They shared geographic proximity, which facilitated collaboration, and, by virtue of their common association with one PhD program in nursing, they also shared exposure to the same philosophical and meta-theoretical perspectives regarding the de-
A philosopher of science who taught in the doctoral program at the University of Maryland, Frederick Suppe, coauthored the manuscript which introduced the theory. Two years after its first publication, a refined version of the theory, which emphasized the reciprocity between the concepts of the theory, was introduced into the nursing literature (Lenz, Pugh, Milligan, Gift, & Suppe, 1997).

The theory of unpleasant symptoms has three major concepts: symptoms, influencing factors (physiological, psychological, and situational), and performance outcomes (Lenz & Pugh, 2003). A symptom is defined as an individually perceived indicator of aberration in normal function, which may occur in isolation or in combination with other symptoms and is characterized by intensity, distress, duration/frequency, and quality, which refers to the nature of the symptom or how it is manifested (Lenz & Pugh). Influencing factors are physiological (e.g., anatomic/structural, genetic, bodily processes), psychological (affective and cognitive), or situational (social and physical environment) qualities that can influence and be influenced by symptom experience. In addition, the theory suggests that when more than one symptom is experienced, the symptom experiences influence each other, emphasizing a reciprocal nature depicted by the model. The authors (Lenz & Pugh) give the example of nipple pain and fatigue, common symptoms for nursing moms which can exacerbate each other and lead to premature termination of breast-feeding, an undesirable performance outcome. Performance outcomes are the consequences of the symptom experience. “Quite simply, the theory asserts that the experience of symptoms can have an impact on the individual’s ability to function, with function including motor skills, social behaviors and cognition” (Lenz & Pugh, p. 78).

Lenz and Pugh (2003) report that research related to the middle-range theory of unpleasant symptoms is just recently beginning to be reported in the literature, with much of the research being done by the developers of the theory themselves. Some of this research has examined interventions to diminish symptoms and therefore improve performance outcomes; some has examined the relationship between influencing factors which impact symptom experience. Some of the unpleasant symptom research completed by people other than the developers of the theory has examined symptoms in cancer patients undergoing chemotherapy, people with heart-lung transplants, end-stage renal disease patients, and people with Alzheimer’s disease (Lenz & Pugh). Use of the theory for research has resulted in critique of the theory which was considered and applied when the developers refined the theory (Lenz et al., 1997).

Lenz and Pugh (2003) note that published reports of use of the theory in practice are few. This is surprising given the fact that unpleasant symptoms are a common experience for most patients whom nurses encounter. Unlike theories at a lower level of abstraction which focus on one symptom, such as pain, the more generic theory of unpleasant symptoms guides approaches for more complex symptom combinations, as often occur in real-world practice situations. For instance, the theory emphasizes the importance of in-depth assessment of symptoms which considers the contribution of influencing factors.

It suggests that multiple management strategies may need to be applied simultaneously, given the multivariate nature of the factors influencing symptoms. It also emphasizes the importance of considering the effect of several symptoms, occurring together, on patient’s functioning, and encourages assessment of functional patient outcomes. (Lenz & Pugh, pp. 85–86)

Thus far, the research guided by the middle-range theory of unpleasant symptoms has addressed the symptoms of pain, dyspnea, nausea, vomiting, and fatigue (Lenz & Pugh, 2003). Clearly, there are more symptoms to be explored. Likewise, there is need for further elaboration of the relationship between
the influencing factors and how the factors relate with the symptom experience. Finally, Lenz and Pugh note the potential for further development of the performance component of the model, suggesting the consideration of primary and secondary outcomes as well as temporally proximal and distal outcomes. There is no question that the middle-range theory of unpleasant symptoms is a work in progress, which could benefit practicing nurses, undergraduate and graduate students, and researchers if used as a guiding framework. Likewise, the theory could benefit from use in practice and research so that continued empirically based development would further enhance the usefulness of the theory.

Patricia Liehr
Mary Jane Smith

Middle-Range Theories of Dementia Care

Nursing has developed and synthesized a number of approaches to guide research and practice for the care of people with dementia. Primarily middle-range theory in nature, these approaches drew upon theoretical propositions developed within and outside nursing that were modified via experiential observations. Nursing knowledge concerning dementia care has grown tremendously during the past decade. Utilizing the criteria of publication and dissemination within nursing, the following middle-range theories were selected (listed alphabetically): Cognitive Developmental (CD) Model (Matteson, Linton, & Barnes, 1996), Individualized Care for Frail Elders Model (Happ, Williams, Strumpf, & Burger, 1996), the Need-Driven Dementia-Compromised Behavior Model (Algase et al., 1996), and the Progressively Lowered Stress Threshold Model (Hall, G. R., & Buckwalter, 1987).

The CD Model (Matteson, Linton, & Barnes, 1996) posits in part that loss of cognitive abilities in dementia follows a reverse order from acquisition. Piagetian theory determines the order in which skills are affected, e.g., at first, formal operational skills are lost, followed by concrete operational tasks, and lastly, sensorimotor abilities which include speech and motor dysfunction. Propositions derived from the model are based on an assessment of the appropriate cognitive level and problem behaviors associated with it. Behavioral management, environmental modification, and caregiver interactions are then determined according to the appropriate developmental stage. Preliminary results of model testing indicate that it was possible to manage behaviors while reducing the number of psychotropic medications (Matteson, Linton, Barnes, Cleary, & Lichtenstein, 1995). Instrument development to assess earlier periods of cognitive function and the combination of this approach with other staging and assessment models have been suggested.

Individualized Care for Frail Elders (ICFE) Model

The ICFE Model (Happ et al., 1996) embodies an interdisciplinary approach to care and emphasizes four points. These are: (1) knowing the person (life story and patterns of response), (2) the relationship (staff continuity and reciprocity), (3) choice (decision-making and risk-taking), and (4) resident participation (daily planning). Evan’s cross-cultural observations in four European countries supported related propositions and delineated three factors that contributed to individualized care: (1) congruent societal and health care values, (2) commonalities of patient needs in all settings, and (3) primacy of caring through knowing the person. Rowles & Dallas (1996) found that family involvement in nursing home decision making served to individualize care and provided a continuing link to the person’s personal history and preferences. Several studies supported cost-effectiveness linked to lowered medication costs and staff turnover. Further research on outcomes and refinements in definitions, goals, and critical attributes is ongoing.
Need-Driven Dementia-Compromised Behavior (NDB) Model

The NDB approach views the person with dementia as experiencing an unmet need or goal that results in need-driven behaviors such as aggression, wandering, problematic vocalizations, and a recent addition, passive behaviors. Behaviors reflect the interaction of salient background and proximal factors found either within the person or in the environment or both. Background variables include neurological, cognitive, health status, and psychosocial factors. Proximal factors include physiological and psychosocial need states and the physical and social environment. NDBs are evaluated on dimensions of frequency and duration. Nursing’s role is to identify those at risk and to intervene with strategies under various sets of environmental circumstances. Collective programs of research on the model were highlighted in a special issue of the Journal of Gerontological Nursing (Overview of NDB Model, 1999). Multiple methods for deriving practice interventions from the model were also published in a subsequent special focus section of this journal (NDB Intervention, 2002). A special section in Aging and Mental Health was devoted to model-derived measurement and intervention strategies (Behavioral Symptoms, 2004). Current research efforts are focused on the identification of variables common to and different from each of the behaviors and on the application of linear modeling to further build the theory.

Progressively Lowered Stress Threshold (PLST) Model

The PLST Model (Hall, G. R., & Buckwalter, 1987) views the person with dementia as experiencing baseline anxieties and dysfunctional states throughout the course of the disease. Anxious behavior occurs during stress, and if stress continues, dysfunctional states such as panic occur. Six principles guide nursing: (1) maximize the level of safe function by supporting all areas of loss in a prothetic manner, (2) provide unconditional positive regard, (3) use behaviors indicating anxiety to determine limits of stimuli and activity, (4) teach caregivers to listen and evaluate verbal and nonverbal responses, (5) modify environment to support losses and enhance safety, and (6) provide education, support, care, and problem-solving for caregivers. The PLST Model has been used to investigate caregiver education effects on caregiving consequences. Training decreased the impact of caregiving (Garand et al., 2002), and improved caregivers’ mood (Buckwalter et al., 1999). The model has been tested in regard to interventions centered on music, touch, pain, nonnutritive sucking, and sleep. Continued research will test the main assumptions of the model.

Examples of other approaches from the last decade (organized chronologically) include: the Sensoristasis Model (Kovach, 2000), the Cognition-Sensitive Approach (Barnes & Adair, 2002), the Implicit Memory and Familiarity Framework (Son, Therrien, & Whall, 2002), and the Comprehensive Model of Psychiatric Symptoms of Progressive Degenerative Dementias (Volicer & Hurley, 2003). Algorithmic frameworks (Beck, Heacock, Rapp, & Mercer, 1993) and decision trees (Richie, 1996) have addressed strategies to determine level of assistance and nursing interventions.

A number of other approaches explicated selected aspects of middle-range theory work for dementia and produced instruments which assess model variables. These include the modification as an observational tool of the Cohen-Mansfield Agitation Inventory by Whall (Chrisman, Tabar, Whall, & Booth, 1991), the Ryden Aggression Scale (Ryden, Bossenmaier, & McLachlen, 1991), Hurley’s Discomfort Scale (Hurley, Volicer, Hanrahan, Houde, & Volicer, 1992), the Modified Interaction Behavior Measure (Burgener, Jirovec, Murrell, & Barton, 1992), the Dementia Mood Picture Test (Tappen & Barry, 1995), and the Algase Wandering Scale (Algase, Beattie, Bogue, & Yao, 2001).
The past decade has been characterized by a resurgence of interest in the development and testing of middle-range theories of dementia care. As these efforts continue to be supported by programs of research, they hold great promise for more effective care in the years ahead.

**Kathy Colling**

**Ann Whall**

**Minority Women Offenders**

To date, criminal justice programs are based on the male experience because of the preponderance of men prisoners. However, criminal justice statistics indicate female detainees are increasing in numbers more rapidly than the male detainee population (Haywood, Kravitz, Goldman, & Freeman, 2000). Additionally, because minority women are disproportionately represented in the numbers of incarcerated women, there is a need for cultural-specific, gender-responsive programs.

Although the majority of federal female offenders are under community supervision, there is very little information available on their characteristics and needs. There is even less known about supervision issues and strategies, treatment approaches, and characteristics that enhance effective programs and successful outcomes for female offenders. The effectiveness of rehabilitation programs for the general offender population has received much attention; however, there is a paucity of research dedicated to the female offender population (Koons, Burrow, Marsh, & Bynum, 1997).

Many of these women offenders are supervised by a probation agency and are considered as low risk and therefore have very little contact with their probation officer. There is, however, indication that this lack of contact with their supervising agent leads to higher rate of failure on community supervision (Chesney-Lind, 2000).

The rationale for women committing a crime is generally different than for their male counterpart. For instance, a woman may have been coerced into drug offenses or other criminal behavior because of an abusive spouse or boyfriend. This type of influence is referred to as gender entrapment (Ritchie, 1996).

Probation and parole periods were initially intended to afford the opportunity of gradual reintegration into the community, eliminating the social stigma in due time; however, this hoped-for pattern of reintegration into a healthy life pattern generally does not occur (Simon, 1993). There is a lack of opportunities for reintegration and acceptance by society. The stigma remains, marking the ex-felon and often creating angry and defiant responses to the related feelings of shame and rejection (Scheff & Retzinger, 1991).

Female offenders have several unique needs and concerns different from their male counterparts. According to Greenfield and Snell (1999), women offenders have different needs than men, probably due to their disproportionate victimization from sexual or physical abuse. They have histories of trauma and substance abuse, and their pathways to crime are based on survival of abuse and poverty (Bloom, 2000). They begin to use alcohol and other drugs at an early age, and there is indication that there is a link between their addiction and physical and sexual abuse (Covington, 1998).

When they are besieged with problems of low self-esteem and the stigma and shame of incarceration, the separation from their children and/or the potential to lose their children will present their probation officer with supervision difficulties. Multiple studies indicate that they present with more complicated and severe mental health problems (DeCosctanzo, 1998).

Criminal justice supervision, programs, and services have been based on the male experience, mostly due to the higher number of men in the criminal justice system as compared to women. Therefore, many of the supervision and program needs of women have been ignored. Thus there is very little empirical evidence indicating what works for female offenders to prevent relapse and recidivism (Bloom, 2000). Programs dominated by men result in women's issues being minimized and
they are less likely to be adequately addressed. Women have been socialized to value relationships and connectedness; thus developing a support system for them is congruent with their orientation. To prevent relapse and recidivism, strategies that are gender-responsive need to be developed and implemented. Although the Federal Court system in San Antonio has recently adopted the Level of Service Inventory—Revised (LSI-R) for use as the risk/need assessment tool for all persons who are in the probation phase, the tool has not been evaluated for validity and clarity with minority women. This pilot represented the first step in a series of pilot studies preliminary for development of a mentoring support program directed to decrease recidivism among minority women offenders.

The Level of Service Inventory—Revised (LSI-R) is an instrument designed to provide a basis for correctional intervention programming that is both appropriate to the level of need for service and to the level of risk for recidivism (Andrews & Bonta, 1995). It was unknown if the major and minor criminogenic targets reflected in the LSI-R were appropriate for minority women or if these women’s recidivism risk can be accurately assessed. The psychometric properties of the Level of Service Inventory—Revised (LSI-R) were found to be reliable, had content validity, and were understood by the majority of participants. This assessment tool will be effective in assessing the recidivism risk of minority female offenders who are in the community supervision phase of their federal sentencing.

**Moral Distress**

Moral distress describes a feeling that occurs in relation to a particular type of morally troubling experience. The term *moral* represents judgments about good or bad (right or wrong) actions, thoughts, or character of people, particularly in relation to human responsibilities. The term *distress* signifies a profoundly negative outcome demonstrated in affective, physical, and relationship domains. Moral distress is the pain or anguish affecting the mind, body, or relationships in response to a situation in which the person is aware of a moral problem, acknowledges moral responsibility, and makes a moral judgment about the correct action, yet, because of real or perceived constraints, participates in perceived moral wrongdoing (Nathaniel, 2004).

Virtually absent from common language usage, the term *moral distress* originated when ethicist Andrew Jameton (1984) recognized that nurses’ stories about moral dilemmas were inconsistent with the definition of *dilemma*. In a moral dilemma, one struggles to decide between two or more mutually exclusive courses of action with equal moral weight. Jameton asked nurses to talk about moral dilemmas in practice. Consistently, the nurses talked about moral problems for which they felt they clearly knew the morally correct action, but believed they were constrained from following their convictions (Jameton, 1993). Jameton concluded that nurses were compelled to tell these stories because of their profound suffering and the importance of the situations. Jameton defined moral distress as follows: “Moral distress arises when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action” (Jameton, 1984, p. 6). Further refining the concept in 1993, Jameton stipulated that, in cases of moral distress, nurses participate in the action that they have judged to be morally wrong. Based upon Jameton’s work, J. M. Wilkinson (1987–88) defined moral distress as “the psychological disequilibrium and negative feeling state experienced when a person makes a moral decision but does not follow through by performing the moral behavior indicated by that decision” (p. 16). Further refining the definitions and offering examples for clarification, nearly every subsequent source relies on Jameton and/or Wilkinson’s definition of moral distress.
Situations involving moral distress may be the most difficult problems facing nurses. Moral distress results in unfavorable outcomes for both nurses and patients. Because of moral distress, nurses experience physical and psychological problems, sometimes for many years (Nathaniel, 2004; Wilkinson, J. M., 1987–88; Fenton, 1988). Reports of the number of nurses who experience moral distress vary slightly. Between 43% and 50% of nurses leave their units or leave nursing altogether after experiencing moral distress (Wilkinson; Millette, 1994; Nathaniel).

Moral distress requires a complex interplay of human relationships, institutional factors, personal attributes, and a morally troubling situation. Moral distress occurs in high-stress situations or with vulnerable patients. Areas that engender high overall stress levels, such as critical care or other areas with very vulnerable patients, harbor a greater proportion of moral problems (Bassett, C. C., 1995; Corley, 1995; Rodney, 1988; Fenton, 1988; Hefferman & Heilig, 1999; Millette, 1994). Moral distress has been documented in the following specific situations: prolonging the suffering of dying patients through the use of aggressive/heroic measures; performing unnecessary tests and treatments; lying to patients, failing to involve nurses, patients, or family in decisions; and incompetent or inadequate treatment by a physician (Wilkinson, 1987–88; Bassett, C. C.; Hefferman & Heilig; Rodney; Corley; Nathaniel, 2004).

Individual nurse’s sense of moral responsibility is an integral part of the moral distress process (Wilkinson, 1987–88; Jameton, 1984). The level of nurses’ moral distress may be influenced by their perceptions of the degree to which they are responsible for what happens to their patients and the degree to which they are able to say, “it is my decision to make” (Wilkinson; Heffernan & Heilig, 1999; Jameton, 1993).

Moral judgment is also a factor in moral distress. Moral distress is not a response to a violation of what is unquestionably right, but rather a violation of what the individual nurse judges to be right. Nurses respond differently to moral problems in terms of their moral awareness, their orientation toward consequences rather than rules, or their orientation toward justice rather than caring (Wilkinson, 1987–88; Millette, 1994).

Institutional setting also contributes to moral distress. Many nurses view themselves as powerless within hierarchical systems (Wilkinson, 1987–88; Rodney, 1988). They perceive little support from nursing and hospital administrations (Fenton, 1988). Nurses may experience moral distress as a result of having been socialized to follow orders, remembering the futility of past actions, or fearing job loss. Other organizational factors contributing to nurses’ moral distress include their views concerning the quality of nursing and medical care, organizational ethics resources, their satisfaction with the practice environment, and the law and/or lawsuits (Wilkinson).

Since conflicting moral judgment is a central theme in moral distress, relationships between nurses and physicians are the most frequently mentioned institutional constraints (Wilkinson, 1987–88; Bassett, 1993; Corley, 1995). Nurses experience moral distress because physicians and nurses have different moral orientations, different decision-making perspectives, and an adversarial relationship (Wilkinson; Bassett; Corley).

Psychological and physical sequelae and changes of behavior may be indicative of moral distress. Psychosocial indicators of moral distress include blaming self or others, excusing one’s actions, self-criticism, anger, sarcasm, guilt, remorse, frustration, sadness, withdrawal, avoidance behavior, powerlessness, burnout, betrayal of personal values, sense of insecurity, and low self-worth (Wilkinson, 1987–88; Fenton, 1998). Nurses describe a need to detach themselves emotionally or withdraw from the situation when they are no longer able to deal with the stress, and may leave the unit for a less stressful area or leave nursing altogether (Fenton; Hefferman & Heilig, 1999). Nurses’ somatic complaints related to moral distress include weeping, palpitations, headaches, diarrhea, and sleep disturbances (Fenton; Wilkinson; Nathaniel, 2004). In addition, empirical evi-
Moral distress also affects the quality of patient care. Some nurses lose their capacity for caring, avoid patient contact, and fail to provide good physical care because of moral distress. Nurses may physically withdraw from the bedside, barely meeting patients’ basic physical needs (Hefferman & Heilig, 1999; Wilkinson, 1987–88; Millette, 1994; Corley, 1995, Nathaniel, 2004).

Moral distress is a serious problem in nursing. It affects the individual nurse, the patient, and the health care system. It also offers important implications for nursing practice, education, and administration, and in the face of a nursing shortage of crisis proportions, presents urgent and unique opportunities for further investigation.

Moral Reckoning

The Grounded Theory of Moral Reckoning in Nursing identifies a process that nurses move through when they have experienced moral distress in the workplace. Moral reckoning includes a critical juncture in nurses’ lives and explains a process that includes motivation and conflict, resolution, and reflection (Nathaniel, 2003). Moral Reckoning is a three-stage process that offers important implications for nursing practice, education, and administration. Distinct stages include the Stage of Ease, the Stage of Resolution, and the Stage of Reflection.

Stage of Ease. During the Stage of Ease, nurses are motivated by core beliefs and values to uphold congruent professional and institutional norms. They are comfortable: they have technical skills and feel satisfied to practice within the boundaries of self, profession, and institution. They know what is expected of them and experience a sense of flow and at-homeness. The Stage of Ease continues as long as the nurse is fulfilled with the work of nursing and comfortable with the integration of core beliefs and professional and institutional norms. For some, though, a morally troubling event will challenge the integration of core beliefs with professional and institutional norms. Nurses find themselves in situational binds that herald a critical juncture in their professional lives.

Situational Binds. A situational bind interrupts the Stage of Ease and places the nurse in turmoil when core beliefs and other claims conflict. Situational binds force nurses to make difficult decisions and give rise to critical junctures in their lives. Binds involve serious and complex conflicts within individuals and tacit or overt conflicts between nurses and others—all having moral/ethical overtones. Inner dialogue leads the nurse to make critical decisions—choosing one value or belief over another. Types of situational binds include (a) conflicts between core values and professional or institutional norms, (b) moral disagreement in the face of power imbalance, and (c) workplace deficiencies. These binds lead to consequences for nurses and patients.

Stage of Resolution. Situational binds constitute crises of intolerable internal conflict. The move to set things right signifies the beginning of the Stage of Resolution. For most, this stage is a critical juncture that alters professional trajectory. There are two foundational choices in the Stage of Resolution: making a stand or giving up. These choices are not mutually exclusive. In fact, many nurses give up initially, regroup, and make a stand. Others make an unsuccessful stand and later give up.

Stage of Reflection. Moving from the Stage of Resolution, nurses reflect as they reckon with their behavior and actions. The Stage of Reflection may last a lifetime. In most cases, the incidents nurses recall occurred early in their careers. The Stage of Reflection raises questions about prior judgments, particular acts, and the essential self. The properties of the Stage of Reflection include remembering, telling the story, examining conflicts, and living with consequences. These properties are
interrelated and seem to occur in every instance of moral reckoning.

Alvita Nathaniel

Mother-Infant/Toddler Relationships

The study of mother-infant/toddler relationships centers on knowledge related to the health and development of the mother-child dyad from birth to 3 years. This focus of inquiry is necessarily large because the mother-child system is an open one, responsive to genetic, biological, environmental, cognitive, and psychological influences (Institute of Medicine, 2000).

The mother-infant/toddler relationship is influenced by genetic factors such as the child’s temperament. Temperament is an in-born constellation of traits that affect the individual’s behavioral reactions to environmental stimuli. Temperamental qualities such as high-intensity reactions, low adaptability to change, or shyness, influence children’s abilities to regulate emotions in stressful situations, relate to other people, and adjust to changes in daily routines. Similar temperamental qualities in the mother are likely to affect her ability to adjust her parenting behaviors to accommodate an unpredictable infant or a defiant 2-year-old (Gross & Conrad, 1995). A poor fit between parent and infant/toddler temperamental styles has been associated with more child behavior problems and increases in physiological indices of stress (Bugental, Olster, & Martorell, 2003).

Biological factors can influence the child’s developmental trajectory, making parenting more stressful and altering the quality of the mother-infant/toddler relationship. For example, low birthweight infants with neonatal medical complications are at greater risk for later developmental, visual, physical, and behavioral disabilities (Boyce, G. C., Smith, & Casto, 1999). Even in the absence of medical complications, mothers of low birthweight infants experience greater stress and caregiver burden than mothers of normal birthweight infants (May & Hu, 2000). Such early biological risk can have significant effects on the quality of the mother-infant/toddler relationship.

The relationship between parenting environment and the mother-infant/toddler relationship has been extensively studied, although the theory underlying cause-and-effect relationships remains poorly understood. For example, there are many hypotheses to account for the significant associations found between parenting in low-income environments and poorer outcomes in very young children (Duncan & Brooks-Gunn, 1997; Mistry, Vandewater, Huston, & McLloyd, 2002). As a result, interventions for promoting healthy parent-child relationships among low-income families simultaneously target many environmental risk factors (e.g., support, psychological guidance, education, nutrition, and facilitating access to community-based services). The complexity of the parenting environment and understanding how social contexts in early life affect young children and parents is an important but underdeveloped area of inquiry (Boyle, W. T., et al., 1998).

The psychological health of the mother and child has received much attention. Maternal stress, low social support, marital discord, and maternal depression have been viewed as important factors placing young children at risk for poor developmental outcomes (Gross, Sambrook, & Fogg, 1999; Peterson & Albers, 2001). Recently, researchers have shifted the focus away from unidirectional to bidirectional effects. For example, depressed mothers who are sad, preoccupied, and irritable may be unable to attend to their infant’s needs or to deal calmly and effectively with their toddler’s demands for attention. However, it is also possible that behaviorally demanding children cause mothers to feel ineffective, fatigued, and ultimately depressed. The clinical implications of viewing problems in the mother-infant/toddler relationship as bidirectional is that effective nursing interventions should focus on the mother-child.
dyad or the family unit rather than on the mother or child alone.

In the past 10 years, greater attention has been placed on the role of race/ethnicity in the development of the mother-infant/toddler relationship. Demographic trends toward greater multiculturalism and expectations for researchers to understand how parenting processes may differ across racial/ethnic groups have led to more thoughtful examinations of parenting processes among families of color (Garcia Coll et al., 1996; McLloyd, Cauce, Takeuchi, & Wilson, 2000). Different family structures and childrearing values will affect how parents socialize their infants and toddlers. While all children thrive under the care of a loving and responsive parent, research has shown that there is no single way that love and attention need to be expressed. Indeed, research has shown that some parenting strategies that negatively affect behavioral outcomes in European-American children appear to have no such affect on African-American children (Whaley, 2000).

Finally, maternal cognitions affect how mothers interpret and respond to their children’s behavior. For example, a mother’s belief that using corporal punishment with her defiant 2-year-old may be based on a series of cognitions related to her values about child defiance and physical punishment, cultural expectations, perceived environmental dangers, how she was raised, and her knowledge of alternative discipline strategies (Garvey, Gross, Delaney, & Fogg, 2000; Goodnow & Collins, 1990).

Although many investigators have understandably narrowed their research to one or two conceptual areas of inquiry, the dyad is dynamically affected by all of these influences. That is, mothers identify parenting goals and devise child-rearing strategies that are consistent with their temperaments, biology, child-rearing environments, cognitions, and psychological capacities (Gross, 1996). Likewise, children’s responses to parents are similarly tied to these same factors. Future research should refine how these influences transact within the parent-child relationship so that research methods can be clarified and cost-effective nursing interventions disseminated to populations in need.

Deborah Gross

Music Therapy

Music therapy is the use of music for the purpose of improving physiological and psychological health and well-being. For music to be therapeutic, there must be an interaction between the music and the person who desires a health outcome from the music (Meyer, 1956). This implies that there are individual, age, culture, and situation-related differences in choice and effect. The saying that music is a universal language gives the false impression that everyone appreciates and is helped by the same music. Although all cultures of the world use music in some form and derive meaning from it, different cultures and different generations are accustomed to listening to widely divergent kinds of music. There may be large differences in volume, pitch, rhythm, tempo, harmony, disharmony, words, and meaning (Cross, 2003). In addition, there is variation within age and cultural groups (Good, Picot, Salem, Picot, & Lane, 2000).

Music therapy may be provided by a registered music therapist who has been taught to use music in many therapeutic ways. However, any member of the health care team may suggest to patients that soft music can be helpful for stress, pain, and mood, and can use stimulating music to encourage socialization, expression, and exercise. Nurses can assess musical preferences, offer a choice of selections, and encourage patient involvement in the music with the goal of achieving specific health outcomes.

Throughout history, music has been used for a variety of therapeutic purposes by primitive people to ward off evil spirits, prevent or cure illnesses, relieve depression, modify emotions, and achieve inner harmony. Early cultures had little means to treat disease, so music and spirituality were used to provide comfort and help people cope. During the
Renaissance, physicians became interested in the therapeutic value of music and incorporated it in their training and practice. From the 17th century onward, physicians studied the effect of music on physiology and psychology, and debated whether to focus on the type of music that was effective versus the type of person who responds positively to music. Nightingale used music with injured soldiers in the Crimea. She had recreation areas where recovering men could go to listen to singing or playing of musical instruments.

At the beginning of the 20th century, the first laboratory studies of the physiological effects of music were conducted on animals and humans. These experiments demonstrated changes in vital signs and body secretions in response to various types of music. They are rejected by most investigators today because of the poor quality of measurement, analysis, and control. In the 1930s music began to be used in patients’ hospital rooms, in surgery prior to general anesthesia, and during local anesthesia. Music was used in obstetrics and gynecology to reduce the side effects of inhalation anesthetics.

Nursing reviews of research on the effect of music on health outcomes can be found in chapters by Good (1996), Guzzetta (1988, 1997), Standley and Hanser (1995), and Snyder and Chlan (1999). The American Music Therapy Association and two journals, the Journal of Music Therapy and Music Therapy Perspectives, are excellent resources.

Music can transport patients’ thoughts to a new place, give them new perspectives, lift their mood, provide comfort, familiarity and pleasure to patients, and stimulate memories, meanings, and self-insight. In addition, studies have shown that music reduces pain and anxiety, reduces muscle tension, raises levels of beta-endorphins, and lowers adrenocorticotropic stress hormones. Music has been found to improve the immune system, salivary cortisol, postoperative and cancer pain, sleep, nausea and vomiting of chemotherapy, mood during stem cell transplantation, pain of osteoarthritis, and cardiac anxiety and autonomic balance. It has also been effective for acute and chronic pain and during stressful or painful procedures (e.g., injections, gastrointestinal endoscopy, and lumbar punctures). Music has been generally found to reduce anxiety before, during, and after surgery, during burn debridement, in chronically ill patients, and after myocardial infarction. It has been studied for circumcision pain in infants, for injection pain in children and adults, for disturbances in psychiatric, demented, and agitated patients, in the critically ill, in dyslexic children, in postanesthesia patients, in the emergency department, and in those who are comatose or dying. Lullabies have shown beneficial effects on preterm infants. A double-blind study of music during surgery showed effects on recovery. In mice, music reduced stress and metastasis and improved immune factors.

Music has been categorized into stimulative and sedative types. Stimulative music has strong rhythms, volume, dissonance, and disconnected notes, whereas sedative music has a sustained melody without strong rhythmic or percussive elements. Stimulative music enhances bodily action and stimulates skeletal muscles, emotions, and subcortical reactions in humans. Sedative music results in physical sedation and responses of an intellectual and contemplative nature (Gaston, 1951). Precategorization by the nurse, however, does not consider the kind of subject response. Other ways of categorizing are slow and fast music, or by type of music or instrument.

To choose music that is therapeutic, the nurse should consider the nature of the music, the patient preferences, and the health state. Nurses can assess patients’ sex, cultural background, musical preferences, music training, participation in music, degree of auditory discrepancy, time available, and, most of all, degree of liking for the music under consideration. Variations in the nature of the health state determine whether music will be used to cheer, encourage, soothe, relax, distract the mind, stimulate exercise, or evoke emotions of joy, triumph, resolve, or peace. Studies have indicated that different kinds of music result in positive or negative feelings and differences in serotonin. Music is economical for patient use. Tapes, compact discs, and
players are relatively inexpensive, and a small library can be maintained on any nursing unit. Music piped into patients’ rooms also may be available. Nurses can suggest that patients and their families bring in favorite music from home that is likely to invoke healthy responses. They can refer patients to a music therapist if one is available.

There are some contraindications and considerations when using music for patients. Contraindications include hypersensitivity to sound, tone deafness, musicogenic epilepsy, and inability to recognize music in some stroke patients. Nurses should consider any patient dislike for any particular selection or type of music, their inability to turn it off when desired, cochlear implants, and culturally incongruent music. In addition, those with hearing loss may or may not find that listening to music is beneficial. Future research in music may include studies that determine the kinds of music that are effective for health outcomes in countries around the world and between cultures in each country. More work on comparing symptomatic response with physiological response is needed to generate theories of conditions in which music is effective, how it affects body processes, and what effect it has on recovery, immune function, and health.

Music brings an air of normalcy, entertainment, pleasure, and escape into a world where illness is often the enemy and both patients and caregivers are fighting back. Music is an integral part of most people’s normal lives and should not be forgotten when they go to hospitals and other health care facilities. With the increased reliance on technology in health care today, music can add a humanistic touch. Beyond the humanistic value of music is the therapeutic value in reducing stress, pain, anxiety, and depression and promoting movement, socialization, and sleep.

Marion Good
Narrative Analysis

Narrative analysis is gaining popularity among nurse researchers as one of the representative modes of studying human experiences, of both clients and nurses, especially from the perspective of interpretivism. Narrative analysis is being used in many different disciplines: literary studies, linguistics, anthropology, psychology, sociology, theology, history, and practice disciplines such as nursing, medicine, occupational therapy, and social work.

All sorts of oral and written representations are considered narratives—fables, folktales, short stories, case histories, exemplars, news reports, personal stories, historiography, interview data, and so forth. Although there are controversies, the term narrative in narrative analysis refers to a story that contains two or more sequentially ordered units, with a beginning, middle, and ending, and represents structured meaning. Narratives are structured about a story plot or plots illustrated by characters (actors) and events. Narratives as stories are characterized by a sense of internal chronology (either temporal or thematic) and connectedness that brings about coherence and sense making. Narratives differ from discourse in that narratives contain descriptions of chronologically articulated events along with sketches of characters of that story.

As narratives are human linguistic products, their construction is closely tied to “storytelling,” that is, the processes involved in producing them. Storytelling is often the object of analysis, along with narratives themselves, in narrative analysis.

The heterogeneity of narratives, representative disciplinary plurality, and the varieties in narrative theories have evidenced in various approaches and orientations in narrative analysis. There are at least three diverse orientations within narrative analysis: (a) structural orientation, (b) storytelling orientation, and (c) interpretive orientation (for other ways of categorizing narrative analysis and a typology of models, see Mishler, 1995).

Structural orientation can be identified with structuralists such as Barthes (1974) and sociolinguists such as Labov (1972) and Gee (1991). In this orientation, narratives are thought to be organized about a specific set of structural units that bring about coherence and connectivity in the narratives. Attention to narrative structures is analytically juxtaposed to such aspects as functions that different structural units perform—sense making in story, or narrativity.

Narrative analysis in the structuralist tradition within literary studies and linguistics focuses on structural-functional connections, as in Propp’s (1968) morphology in relation to internal patterning and narrative genre and in Genette’s (1988) three specific aspects of a story’s temporal articulation (i.e., order, frequency, and duration). In this tradition, narratives subjected to analysis tend to be public material such as folktales, novels, short stories, and case histories.

Sociolinguists attend to “natural” or “situated” narratives, which are constructions produced in specific situations of social life. Labov (1972) identified six structural units
for fully formed narratives: abstract, orientation, complicating action, evaluation, resolution, and coda. He suggested that these structural units are related to two functions in narrative: the referential function and the evaluative function. Gee (1991), on the other hand, identified structural properties of narrative as poetic structures of lines, stanzas, or strophes, which organize meaning constructions in telling a story. The structural orientation is primarily an examination of structural elements of story in relation to the narrative’s form, function, and meaning.

In storytelling, narratives are not viewed simply as products that can be taken out of the context of narrating but as process-oriented constructions that are enmeshed with linguistic materialization of cognition and memory, interactive structuring between the teller and listener, and contextually and culturally constrained shaping of experiences and ideas. From this standpoint, narrative analysis is closely aligned with discourse analysis, as in ethnography of communication in anthropology and ethnomethodology in sociology.

Narrative analysis in this orientation is differentiated into two schools: linguistic/cognitive and sociocultural. The linguistic/cognitive version focuses on how narratives are materialized in language from ideas and experiences. This construction is viewed to be accomplished by applying communicative and interactive functions of language and through scripting and schematizing of yet unorganized information into connected storytelling. In this version, storytelling is considered as the processing of nonlinguistic ideas, events, and actions into a series of connected and coherent representation of meanings.

On the other hand, narrative analysis in the sociological version within the ethnomethodological tradition is concerned with the interactive process of narrative making. Conversational narratives are of prime interest. The listener is an active part of storytelling as an interactive participant in the making of a story. From an anthropological perspective, storytelling is viewed as bounded by cultural conditions and cultural categories. Narrative analysis in this orientation carries out an analysis of narrative texts in terms of form and content, along with an analysis of the flow of storytelling, with the assumption that the nature of narrative text is integrally connected to the processes of construction.

Narratives in the interpretive orientation are chronological in a double sense: chronology in terms of temporal serialization of events and chronology in terms of temporality of story itself. Ricoeur (1984) specified episodic and configurational dimensions as the temporal dialectics that integrated plot in narrative. Hence, narratives are stories of individuals etched within the communal stories of the time and context. Narrative analysis thus involves interpretation of representation posed within the contexts in which the story is shaped and the storytelling occurs, reflecting on the worldviews that provide a larger contextual understanding. In this sense, the interpretative orientation is more concerned with meaning of narratives than with either the structure or the process.

Riessman (1993) offers five levels of representation in the research process of narrative analysis: attending, telling, transcribing, analyzing, and reading. Interpretation occurs at the levels of transcribing and analyzing by the researcher, whereas the level of reading implies additional interpretation that occurs in the readers of research reports. Riessman favors the use of poetic structures as the mode of structuring narratives as interpretive; however, the use of any specific structuring model is less critical for the analysis than interpretation.

Although there are distinct differences among these orientations, there are many hybrid forms of narrative analysis used in actual research practice. Hybrid forms often combine analysis of process or meaning with structural analysis. In nursing research, narrative analysis has been applied with various orientations and in different hybrid forms. Narratives of clients’ personal experiences, such as suffering, being diagnosed with cancer, isolation, and dying, have been studied by applying Labov or Gee as well as within the storytelling orientation. Narratives of
practice by nurses have been subjected to analyses in the interpretive orientation for understanding the meanings of their practice and their value orientations. In addition, the interpretive orientation from the feminist perspective has been used to study women’s experiences, such as health care seeking, pregnancy with the history of drug abuse, and recovery. Research of narrative accounts of clients and nurses, as well as their interactions, can produce deep understanding of human experiences that are fundamental to nursing practice.

Hesook Suzie Kim

National Institute of Nursing Research

The National Institute of Nursing Research (NINR) is one of 24 institutes, centers, and divisions that comprise the National Institutes of Health (NIH). The NIH is one of eight health agencies of the Public Health Service in the U.S. Department of Health and Human Services. Headquartered in 75 buildings on more than 300 acres in Bethesda, Maryland, the NIH is the steward of biomedical and behavioral research for the nation. Its mission is to improve the health of the American people through increased understanding of the processes underlying human health and the acquisition of new knowledge to help prevent, detect, diagnose, and treat disease. Approximately 80% of the annual NIH investment is made through grants and contracts to support extramural research and training in more than 1,700 universities; medical, dental, and nursing schools; hospitals; and other research institutions throughout the United States and abroad. About 10% of its budget goes to the more than 2,000 projects conducted in its own intramural laboratories.

In 1996 the NINR celebrated the 10th anniversary of its establishment at the NIH. Originally designated as the National Center for Nursing Research by Public Law 99-158 in 1986, it attained institute status through the NIH Revitalization Act of 1993. Its budget of $16 million in 1986 had grown to $139 million in 2005. The original staff of 9 members has increased to over 50 people, including scientists, administrators, and support staff.

Nursing research is a relative newcomer to the scientific community. Unlike other health-related disciplines, nursing began as an occupation in hospital settings, not as a discipline in academic institutions. Although there is a history of nurses receiving advanced degrees in many different academic fields, it has been only within the past 25 years that doctoral preparation has been available in the field of nursing, paving the way of nursing research to grow and flourish at universities and research centers.

The mission of the NINR supports basic and clinical research to establish a scientific basis for the care of individuals across the life span—from management of patients during illness and recovery to the reduction of risks for disease and disability and the promotion of healthy lifestyles. With this broad mandate, the institute seeks to understand and ease the symptoms of acute and chronic illness, to prevent or delay the onset of disease or slow its progression, to find effective approaches to promoting good health, and to improve the clinical settings in which care is provided. The NINR supports research on problems encountered by patients’ families and caregivers. It also emphasizes the special needs of at-risk and underserved populations. These efforts are crucial in translating scientific advances into cost-effective health care that does not compromise quality.

The first NINR director, Dr. Ada Sue Hine-shaw, who held the position from 1987 to 1994, is widely recognized for her contributions to teaching, nursing research, and academic administration. Under her leadership the institute was established as an active participant within the federal research community and achieved national recognition for nursing research. The current director, Dr. Patricia A. Grady, an internationally recognized stroke researcher, was appointed in 1995, following positions as deputy director...
and acting director of the National Institute of Neurological Disorders and Stroke.

The NIH employs a two-level system for reviewing grant applications. In the first level, panels of extramural experts evaluate the scientific merit of the proposed research. The second level of review is carried out by national advisory councils, which consider scientific merit as determined in the first level of review, program relevance, and appropriate allocation of resources. Councils also advise on policy development, program implementation, evaluation, and other matters of importance to the missions and goals of the NIH institutes and centers. Advisory councils are composed of scientific and lay representatives who are noted for their expertise or interest in issues related to the missions of the institutes and centers they serve.

The NINR’s advisory council—the National Advisory Council for Nursing Research—is composed of 15 members. Ten are leaders in the health and scientific disciplines relevant to the activities of the NINR, and five public members are leaders in health care, public policy, law, and economics. The advisory council also includes six ex officio members: the secretary of the Department of Health and Human Services (DHHS), the NIH director, the chief nursing officer of the Department of Veterans Affairs, the assistant secretary for health affairs of the Department of Defense, and the director of the Division of Nursing, Health Resources and Services Administration, DHHS.

NIH award mechanisms are divided into three categories: grants, contracts, and cooperative agreements. The primary mechanism used by the NINR is the investigator-initiated grant. This mechanism supports research and research training projects for which the applicant develops the protocol, concept, method, and approach. It includes research projects (R01s), First Independent Research Support and Transition (FIRST) awards (R29s), and Research Scientist Development awards (K01s). In certain instances, the NINR may solicit applications for special mechanisms such as core center grants (P30s) and small research grants (R03s). The NINR uses the cooperative agreement mechanism, which supports the recipient’s activities and provides for substantial involvement of the funding agency during the period of performance. The NINR also supports research training through individual and institutional National Research Service awards (F31s, F32s, F33s, and T32s).

As the NINR identifies new opportunities for research, nursing researchers are moving to the forefront of many innovative areas of scientific exploration. For example, the NINR is responding to the clinical implications of genetics discoveries with research programs in the clinical management of conditions associated with genetic disorders, including genetic screening and counseling, clinical decision making, and bioethical considerations. Nursing researchers are also taking the lead in the remediation of cognitive impairment, the prevention and control of pain, and the management of side effects associated with medical treatment. In addition, nursing research focuses on methods to stem microbial threats to health through improved approaches to prevention and adherence to treatment. NINR-funded research also links biological and behavioral approaches to health care. A further area of research interest is the role of cultural sensitivity as a factor in health research and health care.

The NINR research portfolio is broad, invites collaboration among many disciplines, and is cosponsored by most of the other NIH research institutes and centers. The NINR supports research across six major areas: (1) neurofunction and sensory conditions; (2) reproductive and infant health; (3) immune, infectious, and neoplastic diseases; (4) cardiopulmonary and acute illnesses; (5) metabolic and other chronic illnesses; and (6) human development and health risk behaviors. Individuals who are interested in submitting applications for grants to conduct research in areas of interest to the institute are encouraged to contact the NINR program staff at the following address and telephone number to discuss research opportunities and proposed areas of investigation before embarking on the application process. Division of Extramural Activities, National Institute of Nursing Research, NIH, Building 45,
National Institutes of Health

Begun as the one-room Laboratory of Hygiene in 1887, the National Institutes of Health (NIH) today is one of the world’s foremost biomedical research centers. Although the institution’s roots extend back over a century, the “modern” NIH dates from the years following World War II, when growing awareness of public health needs converged with new scientific capabilities and an increased national investment in health-related science. As the federal focal point for health research, the NIH is one of eight health agencies of the Public Health Service, which, in turn, is part of the U.S. Department of Health and Human Services. The NIH is composed of 24 separate institutes, centers, and divisions, each focused on a particular aspect of health research. The NIH has 75 buildings on more than 300 acres in Bethesda, Maryland. From about $300 in 1887, the NIH budget has grown to nearly $28 billion as of 2005.

Since its inception the NIH has had 14 directors. The first was Joseph James Kinyoun, who was the founder and director of the Laboratory of Hygiene that later grew to become the NIH. The current director is Elias Z. Zerhouni, a well-respected leader in radiology and medicine.

NIH Institutes, Centers, and Divisions

National Cancer Institute (NCI)
National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental Research (NIDR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Human Genome Research Institute (NHGRI)
National Library of Medicine (NLM)
National Center for Research Resources (NCRR)
John E. Fogarty International Center (FIC)
Warren Grant Magnuson Clinical Center (CC)
Division of Computer Research and Technology (DCRT)
Division of Research Grants (DRG)

The NIH website at http://www.nih.gov contains links to each of the above organizations’ websites, which contain information on their missions and activities in support of research (Office of Communications, 1996).

The NIH Mission, Goals, and Research Support

The NIH is the steward of biomedical and behavior research for the nation. Its mission is
science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability. The NIH works toward that mission by conducting clinical and basic research in its own laboratories, supporting research institutions throughout the country and abroad, helping in the training of research investigators, and fostering communication of information on health improvement.

The goals of the agency are as follows: (a) to foster fundamental creative discoveries, innovative research strategies, and their applications as a basis to advance significantly the nation’s capacity to protect and improve health; (b) to develop, maintain, and renew scientific human and physical resources that will assure the nation’s capability to prevent disease; (c) to expand the knowledge base in biomedical and associated sciences in order to enhance the nation’s economic well-being and ensure a continued high return on the public investment in research; and (d) to exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

In realizing these goals the NIH provides leadership and direction to programs designed to improve the health of the nation by conducting and supporting research in the causes, diagnosis, prevention, and cure of human diseases; in the processes of human growth and development; in the biological effects of environmental contaminants; and in the understanding of mental, addictive, and physical disorders. The NIH also directs programs for the collection, dissemination, and exchange of information in medicine, nursing, and health, including the development and support of medical libraries and the training of medical librarians and other health information specialists (National Institutes of Health, 1996).

**NIH Impact on the Health of the Nation**

NIH research played a major role in making possible the following achievements of the past few decades.

1. Mortality from heart disease, the number-1 killer in the United States, dropped by 41% between 1971 and 1991.
2. Death rates from strokes decreased by 59% during the same period.
3. Improved treatments and detection methods increased the relative 5-year survival rate for people with cancer to 52%. At present, the survival gain over the rate that existed in the 1960s represents more than 80,000 additional cancer survivors each year.
4. Paralysis from spinal cord injury is significantly reduced by rapid treatment with high doses of a steroid. Treatment given within the first 8 hours after injury increases recovery in severely injured patients who have lost sensation or mobility below the point of injury.
5. Long-term treatment with anticlotting medicines cuts stroke risk by 80% from a common heart condition known as atrial fibrillation.
6. In schizophrenia, where suicide is always a potential danger, new medications have reduced troublesome symptoms such as delusions and hallucinations in 80% of patients.
7. Chances for survival have increased for infants with respiratory distress syndrome, an immaturity of the lungs, because of development of a substance to prevent the lungs from collapsing. In general, life expectancy for a baby born today is almost three decades longer than one born at the beginning of the century.
8. Those suffering from depression now look forward to returning to work and leisure activities, thanks to treatments that have given them an 80% chance to resume a full life in a matter of weeks.
9. Vaccines protect against infectious diseases that once killed and disabled millions of children and adults.
10. Dental sealants have proved 100% effective in protecting the chewing surfaces of children’s molars and
premolars, where most cavities occur.

11. Molecular genetics and genomics research has revolutionized biomedical science. In the 1980s and 1990s researchers performed the first trial of gene therapy in humans and were able to locate, identify, and describe the function of many of the genes in the human genome. Scientists predict this new knowledge will lead to genetic tests to diagnose diseases such as colon, breast, and other cancers and to the eventual development of preventive drug treatments for individuals in families known to be at risk. The ultimate goal is to develop screening tools and gene therapies for the general population, not only for cancer but for many other diseases.

Patricia A. Grady

Neuman Systems Model

The Neuman Systems Model (NSM) provides a broad, comprehensive, systems approach as a framework for the profession of nursing to organize care, educate future providers, and conduct research. The model offers a holistic approach, a wellness orientation, client perception, and motivation with a systems perspective of variable interaction with the environment (Neuman, 2001, p. 12). The model’s philosophical and theoretical underpinnings include: von Bertalanffy’s (1968) general systems theory, De Chardin’s (1955) philosophical views of the wholeness of life, gestalt theory and its focus on perception (Pearls, 1973) and field theory (Edelson, 1970), and the typology of prevention interventions (Caplan, G., 1964). Additionally, Seyle’s (1950) theory of stress and adaptation and Lazarus and Folkman’s (1984) theory of stress and coping were foundational to the development of the NSM. Consequently, two components undergird much of the focus of the model: exploring the client’s response to stressors, and identifying the nurse’s preventive interventions that assist the client in responding to these stressors. The ultimate goal of the unique profession of nursing is to assist the client in achieving the goals of an optimum state of wellness.

Betsy Neuman first developed the Neuman Systems Model to assist graduate students at the University of California, Los Angeles, to conceptualize a systems approach to health care. It is based on Neuman’s personal philosophy shaped by the philosophical and theoretical tenets mentioned previously, and her experience as a consultant in public health and community mental health nursing (Walker, P. H., 2004). It was developed in 1970 and is used by practitioners, educators, and increasingly by researchers nationally and internationally.

The main concepts of the NSM are consistent with those of the nursing metaparadigm which undergird most of the other grand theories in nursing: person, environment, health, and nursing. Within the context of the nursing metaparadigm, the primary components of the NSM include: stressors, lines of defense and resistance, levels of prevention, the five client systems variables (basic structure, interventions, internal and external environment, and reconstitution). All concepts have been defined by Neuman in each of her texts (Neuman, 1982, 1989, 1995, 2001).

Neuman describes nursing as a “unique profession”—concerned with the interrelationship of “all variables affecting a client’s possible or actual response to stressors. Thus, nursing uniqueness is related to the way the discipline organizes and utilizes its knowledge (Neuman, 1989, p. 24). The nurse is an intervener who uses three levels of prevention (primary, secondary, and tertiary) to achieve the goal of reducing the client’s encounter with stressors and/or mitigating the impact of the stressor. The ultimate goal is to help the client system retain stability.

The client or client system is the term Neuman uses for person, because the focus of the model is wellness and fostering a collaborative relationship between the client and the caregiver (the nurse, in this case). The client or client system may be an individual, group, family, and/or community and is composed of five interrelated variables (physiological, psychological, sociocultural, developmental,
The spiritual variable was added to the model in 1989 to be more consistent with Neuman’s holistic belief about humans (Neuman, 1989). These variables are surrounded by various lines of defense and resistance. According to Neuman, a client’s normal "line of defense" is dynamic, evolves over time, and contains the client’s normal range of responses to stressors, thereby reflecting his or her usual wellness level (Neuman, 2001, p. 18). Further, the client or client system has internal lines of defense which function to protect the client’s basic structure or system integrity which, if ineffective, will result in system energy depletion and eventually death (Neuman, 2001, p. 18).

Environment, according to Neuman consists of internal, external and created environment(s). The internal environment is composed of forces within the client identified by Neuman as intrapersonal stressors. Other stressors (interpersonal and extrapersonal) make up the external environment. The concept of a created environment was also added in 1989, again to reflect Neuman’s holistic perspective and beliefs. The created environment is considered to be unconsciously developed by the client in order to protect the client from intrapersonal, interpersonal, and extrapersonal stressors and maintain system stability (Neuman, 1989, p. 12).

Health, according to Neuman is equated with living energy, determined by the degree of harmony among the five client variables and basic structure factors, on a continuum from wellness to illness. The degree of wellness is determined by the amount of energy required to retain, attain, or maintain system stability (Neuman, 2001, p. 12).

Although the NSM has been used widely in practice and education, it is increasingly being utilized in the research community, particularly by students in masters and doctoral programs. An integrative review of NSM-based research conducted by Fawcett and Giangrande (2001) found 200 research reports with an analysis focused on general information, scientific merit, and the NSM. The majority of the 200 studies were related to clinical nursing topics (75%), followed by nursing administration (14%), nursing education (9%), with the least on continuing education (2%). The fact that much of the research is related to practice-oriented questions hopefully begins to address concerns by P. H. Walker and Redman (1999) that evidence-based practice may be threatening the foundation of nursing’s disciplinary perspective on theory-guided practice. Analysis of the scientific merit revealed the following: 37% were descriptive studies, 32% were experimental studies, 25% were correlation studies, and approximately 4% were designed to develop and test instruments (Fawcett & Giangrande, 2001, p. 124). A summary of the analysis of elements related to the NSM indicated: most frequently, development of testing of prevention as intervention; next, 24% explored perception of stressors; 9% were studies involving client variables; and only a few studies (1% to 5%) were on lines of defense and/or resistance.

In reference to use of instrumentation, Gigliotti and Fawcett (2001) reviewed 212 research reports and identified different instruments explicitly linked to the NSM—sometimes more than once, and for different purposes. These instruments included: Beck Depression Inventory, State Trait Anxiety Inventory, the Norbeck Social Support Questionnaire, the Dynamap, the Carter Center Institute Health Risk Appraisal, and the Health Status Questionnaire. In an important evaluation of instrumentation related to middle-range theory, Gigliotti and Fawcett found that 26 instruments measured concepts related to stressors, 24 measured concepts related to lines of defense, and 22 measured prevention interventions. Other NSM-related concepts (middle-range) were measured by the remaining 16 instruments. Of those instruments, 59 were classified as standardized (having sufficient evidence of validity and reliability testing) and 62 were considered non-standardized (Gigliotti & Fawcett, pp. 153–154).

To enhance and facilitate future research related to the NSM, Neuman and Fawcett (2001) have established a set of guidelines for NSM-based research. Additionally, Fawcett
Neurobehavioral Development and Nutritive Sucking

Neurobehavioral development is a genetically determined process by which the primitive central nervous system (CNS) achieves maturity in form and function. Neurodevelopment also depends on the environment since CNS development occurs through an “experience expectant” process in which normal species-typical experiences enable the CNS to make the structural and functional changes necessary for the next stages of development (Greenough, Black, & Wallace, 1987). In order to balance the needs of the present developmental stage and the anticipated needs of subsequent stages, this process is somewhat plastic (Oppenheim, 1981). When an infant is placed in an atypical environment such as a neonatal intensive care unit, ontogenetic adaptation is affected. Although the infant may initially adapt successfully, changes in the trajectory of the infant’s neurobehavioral development may be maladaptive at older ages. The effects of this disturbance vary depending on the timing and severity of environmental stresses, individual genetic background, the interaction of genetic background and prenatal history, adaptations made to uterine stresses, and specific neurological insults. Infants probably develop normally when neural plasticity—the process by which the brain develops new connections after neural damage—compensates for abnormalities due to any atypical ontogenetic adaptation and neurological insults. Infants exhibit abnormal neurobehavioral development when neural plasticity is not able to compensate, or when compensatory processes result in structural or functional changes that are maladaptive at later ages.

The Synactive Model of Neonatal Behavioral Organization provides a framework for exploring the concept of neurobehavioral development. Als (1991) has proposed a dynamic model for assessing infant behavioral organization. She proposed that the behavioral organization displayed by an infant is a reflection of the infant’s central nervous system integrity, defined as the potential for the brain to develop normally. The infant’s behaviors reflect subsystems of functioning, which include the autonomic, motor, state, attentional or interactive, and regulatory systems. The autonomic system controls physiologic functions that are basic for survival, such as respiration and heart rate. The motor system involves muscle tone, infant movements, and posture. State organization encompasses clarity of states and the pattern of transition from one state to another. The attentional or interactional system can be observed only in the alert state and is indicative of an infant’s ability to respond to visual and auditory stimulation. An infant’s regulatory system reflects the presence and success of an infant’s efforts to achieve and maintain a balance of these other subsystems.

Another framework used is the perspective of developmental science, a multidisciplinary field that brings together researchers and theorists from psychology, biology, nursing, and other disciplines (Cairns, Elder, & Costello, 1996; Miles & Holditch-Davis, 2003). In this perspective, infants are viewed as developing in a continuously ongoing, reciprocal process of interaction with the environment. Infants and their environments form a complex system, consisting of elements that are themselves systems, such as mother and child, in-
teracting together so that the total system shows less variability than the individual elements. Moreover, plasticity is assumed to be inherent in infants, their families, and the environment. Infants are active participants in their families and the greater environment, constantly changing them at the same time that they are influencing the infant. Interactions, rather than causation, are the focus of this perspective. No action of one element can be said to cause the action of another since interactions between elements are simultaneous and bidirectional. The interactions affecting development of infants are too complex to ever be totally identified, and infants can achieve the same developmental outcomes through different processes.

Newborn behavior, which includes sucking, sleeping, and waking, is the infant’s primary expression of brain functioning and the critical route for communication with adults. Investigation of these behaviors and their central mechanisms is essential for nursing understanding of the needs of infants and in planning interventions to improve their neurodevelopmental status.

The idea of evaluating the vitality and central nervous system integrity of a neonate by assessing sucking is not new. Nutritive sucking is initiated in utero and continues to develop in an organized pattern in the early weeks after birth. It involves the integration of multiple sensory and motor central nervous system functions (Wolff, 1968). Sucking behaviors are thought to be an excellent barometer of central nervous system organization. They can be quantified in detailed analysis and are disturbed to various degrees by neurologic problems. Wolff describes the study of sucking rhythms to investigate serial order in behavior and development, which has remained among the most resistant to empirical investigation.

The work of Medoff-Cooper and colleagues (Medoff-Cooper, 1991; Medoff-Cooper, McGrath, & Bilker, 2000; McGrath & Medoff-Cooper, 2001) demonstrated that changes in the pattern of nutritive sucking behaviors can be described as a function of gestational age in healthy preterm and full-term infants. They reported a systematic pattern of gestational related change in sucking behavior that was reflected at each level of temporal analysis, with a strong correlation between increasing maturation and more organized sucking patterns (Medoff-Cooper, 2002). When comparing sucking behaviors at term of 213 extremely early born infants (gestational age \(\leq 29\) weeks), more mature preterm infants (30–32 weeks gestational age) and newly born full-term infants, feeding behaviors were noted to be a function of gestational age at birth as well as the interaction of maturation and experience. Extremely early born preterm infants were found to demonstrate less competent feeding behaviors than either more mature preterm infants or newly born full-term infants.

Lau, Smith, and Schandler (2003) also found that with increasing postconceptual age (PCA), preterm infants demonstrated significant improvement in feeding performance. They reported a significant relationship between average bolus size and sucking pressures and sucking frequency. Tolerating as well as adapting to increasing bolus size serves as an indicator of maturation in feeding behaviors.

Gewolb, Bosma, Reynolds, and Vice (2003) used increasing rhythmic stability as the index of maturation of sucking or feeding behaviors. In their comparison of healthy preterm infants and preterm infants with bronchopulmonary dysplasia (BPD), an increase in stability of rhythm and uniformity of waveform morphology was correlated with feeding efficiency and increasing PCA in healthy preterm infants. This relationship was not found to be true in the BPD cohort. They concluded that the poor feeding efficiency may be related to decreased respiratory reserves or may be secondary to nonspecific neurologic impairment.

The potential link between nutritive sucking and future developmental problems has been identified throughout the feeding literature. One early study by Burns and colleagues (1987) showed that infants with significant intraventricular hemorrhage were delayed in their ability to achieve a nutritive suck reflex.
Neurobehavioral Development and Nutritive Sucking

At week 40 only 75% of the 110 infants demonstrated mature nutritive sucking patterns. Medoff-Cooper and Gennaro (1996) reported that sucking organization or rhythmicity was a far better predictor than neonatal morbidity of developmental outcome at 6 months of age. At 12 months of age, organized feeding patterns at 40 week PCA were significantly correlated with both Mental Developmental and Psychomotor Developmental Index (Medoff-Cooper, 2002).

Sleeping and waking states are clusters of behaviors that tend to occur together and represent the infant’s level of arousal, responsiveness to external stimulation, and central nervous system activation. Three states have been identified in adults: wakefulness, non-REM (rapid eye movement) sleep, and REM sleep. In infants, it is also possible to identify states within waking and states that are transitional between waking and sleeping. Because the electrophysiological patterns associated with sleep in infants are different than those in adults, infant sleep states are usually designated as active and quiet sleep.

Because of infants’ neurological immaturity, EEG and behavioral scoring of states in preterm and full-term infants provide quite similar results. Sleeping and waking states in infants can be validly scored either by EEG or by directly observing infant behaviors. Four standardized systems for scoring behavioral observations of sleep-wake states are currently being used by nurse researchers: the 6 state system developed by T. Berry Brazelton, the 10 state system of Evelyn Thoman, the 12 state system from Heideliese Als’s Assessment of Preterm Infant’s Behavior (APIB), and 12 state scoring system based on the Anderson Behavioral State Scale (ABSS) developed by Gene Anderson (see Holditch-Davis, Blackburn, & Vandenberg, 2003). These systems define states in very similar ways and are probably equally useful for clinical purposes. However, the Brazelton system is the most limited for research as it can only be used with infants between 36 and 44 week PCA, and Thoman’s is the most flexible as it has been used with 27 week PCA preterm infants through 1-year-olds.

Sleeping and waking states have widespread physiological effects. The functioning of cardiovascular, respiratory, neurological, endocrine, and gastrointestinal systems differs in different states. Sleeping and waking also affect the infant’s ability to respond to stimulation. Thus, infant responses to nurses and parents depend to a great deal on the state the infant is in when the stimulation is begun. Timing routine interventions to occur when the infant is most responsive is an important aspect of current systems of individualized nursing care.

Studies have indicated that sleep and waking patterns are closely related to neurological status (Thoman, 1982; Halpen, Maclean, & Baumeister, 1995). State patterns of infants with neurological insults differ markedly from those of healthy infants. Abnormal neonatal EEG patterns are associated with severe neurological abnormalities and major neurodevelopmental sequelae during childhood. Also, preterm infants with severe medical illnesses exhibit patterns of sleep-wake states that differ from those of healthier preterms, although most of these differences disappear when infants recover (see Holditch-Davis et al., 2003b for references).

Sleep and wakefulness may be directly related to brain development. For example, because active sleep is less common in adults than non-REM sleep but is much more common in infants, it has been hypothesized to be necessary for brain development (Roffwarg, Mazio, & Dement, 1966). Also, EEG changes over age in sleep architecture, increasing spectral energies, and greater spectral EEG coherence probably indicate maturational changes in the brain, including synaptogenesis, evolution of neurotransmitter pools, and myelination.

Sleep-wake patterns can also be used to predict developmental outcome. Measures of sleep-wake states during the preterm period (amount of crying, quality of state organization, sleep cycle length, and amount of night sleep) predict Bayley scores during the 1st year. Developmental changes in the amounts of specific sleep behaviors during the 1st year are related to developmental and health out-
comes in the 2nd year. Further, the stability of behavioral sleep-wake patterns in the late fetal period and in the 1st month predicts later development. EEG sleep measures in preterm infants have been related to developmental outcome at up to 8 years. Acoustic characteristics of infant cries have been used to predict developmental outcome in preterm infants and infants exposed to drugs prenatally (see Holditch-Davis et al., 2003b for references).

In summary, nutritive sucking, a noninvasive and easily measured behavior, appears to be an excellent index of neurodevelopment in preterm infants. Sleeping and waking patterns appear to provide an excellent index of neurodevelopmental status in preterm and full-term infants that can be either scored behaviorally or by EEG.

BARBARA MEDOFF-COOPER

Neuroleptic Use in Nursing Homes

Psychiatric illnesses, particularly dementia, are common diagnoses in nursing home residents. Often they are the main reason for nursing home placement (Stoudemire & Smith, 1996). It has been reported that dementia, mostly Alzheimer’s disease (AD), may be present in over 70% of residents in nursing homes and 24% of those residents may exhibit psychotic features (Stoudemire & Smith). Primary care providers, including advance practice nurses (APNs), are treating a growing population of older adults with dementia and many cases will be complicated with behavioral problems such as agitation. In addition to the complexities of the illness the clinician must frequently practice in an environment of fiscal constraints, staff shortages, and concerns about meeting federal standards.

Treatment can be divided into pharmacological and nonpharmacological interventions. Psychotropic medications are the mainstay of pharmacological treatment. Lasser and Sunderland (1998) did a retrospective chart review involving 298 residents in seven nursing homes. They found that 70% of the subjects took at least one psychotropic, 32% were taking benzodiazepines, and 42% were on neuroleptics. Within the AD group 54% were taking neuroleptics, 27% were taking benzodiazepines, and 13% took both. Another study involving a secondary analysis of a clinical trial with 446 subjects in three nursing homes yielded lower but still significant results. Between 14% and 19% of the subjects were taking neuroleptics in the three groups studied (Siegler et al., 1997). Although neuroleptics are commonly used to treat disruptive or psychotic features of dementia, the potential for anticholinergic and extrapyramidal side effects requires careful weighing of risks and benefits.

“Chemical restraints” is a term used to describe the excessive or inappropriate use of psychotropic medications, particularly sedatives and neuroleptics, in residents who do not have a psychiatric diagnosis or behavioral symptoms that justify their use (Siegler et al., 1997). Another description is a drug that is used to limit the physical movement of the patient (Fletcher, 1996). In an effort to protect the residents of nursing homes from overreliance on psychotropics and their adverse reactions, the federal government passed legislation restricting their use. This legislation was part of the Omnibus Budget Reconciliation Act of 1987 (OBRA 1987). In 1990, the Health Care Financing Administration (HCFA) issued guidelines based on OBRA 1987 regulations (Gurvich & Cunningham, 2000).

The first step in the guidelines requires clinicians to rule out medical or environmental causes of a problem behavior. This is essential in avoiding the misdiagnosis of delirium, which would dictate a different course of treatment possibly targeting an underlying medical cause. To justify the use of a neuroleptic the target behavior must be diagnosed and documented. The resident with delirium must be reevaluated at set intervals with a goal of reducing or eliminating the medication. Ideally the smallest effective dose will be used for the shortest period necessary.

In an effort to protect the residents of nursing homes from overreliance on psychotropics and their adverse reactions, the federal government passed legislation restricting their use. This legislation was part of the Omnibus Budget Reconciliation Act of 1987 (OBRA 1987). In 1990, the Health Care Financing Administration (HCFA) issued guidelines based on OBRA 1987 regulations (Gurvich & Cunningham, 2000).

The first step in the guidelines requires clinicians to rule out medical or environmental causes of a problem behavior. This is essential in avoiding the misdiagnosis of delirium, which would dictate a different course of treatment possibly targeting an underlying medical cause. To justify the use of a neuroleptic the target behavior must be diagnosed and documented. The resident with delirium must be reevaluated at set intervals with a goal of reducing or eliminating the medication. Ideally the smallest effective dose will be used for the shortest period necessary.
Researchers have suggested that nonpharmacological interventions have been effective in reducing behavioral problems, and evidence-based practice recommends their use. They should be instituted before psychotropic medications, when possible, and continued after medications are prescribed. Some of the interventions for behavioral symptoms include light exercise, music, and environmental modifications (Bartels et al.). The National Guideline Clearinghouse has similar evidence-based practice guidelines for AD, including specific interventions to reduce wandering and to treat problem behaviors.

The guidelines issued by HCFA seem to concur with evidence-based practice guidelines. The clinician is expected to assess the cause of a problem behavior and weigh the risks and benefits of prescribing a neuroleptic to a person with dementia. Nonpharmacological interventions should be considered first line and may be used in conjunction with psychotropics.

One randomized controlled trial comparing psychotropics, behavior management techniques, and a placebo found no significant differences in efficacy for treatment of agitation (Teri et al., 2000). Future research should be directed at comparing the effectiveness of combining pharmacological and nonpharmacological interventions. Randomized control studies comparing anticonvulsants with neuroleptics in subjects with dementia may also be of benefit. As the population continues to age, APNs will be providing care for a growing number of patients with dementia. Knowledge of the treatment options and their effectiveness is essential and will apply to all practice settings that encounter older adults.

**Michele Freeman Irwin**

**Newman’s Theory of Health**

Margaret Newman is an eminent, visionary nurse theorist whose contributions to nursing science and nursing practice span 30 years of
sustained scholarship on the theory of health as expanding consciousness. Newman’s theory of health exemplifies her focus on a unitary-transformative paradigm for the discipline of nursing and on research as praxis methodology.

Newman’s conceptual framework of health was introduced in her book *Theory Development in Nursing* (1979) and was expanded and refined in two editions of her book *Health as Expanding Consciousness* (1986, 1994). Her work was published at a time when less-abstract theories of nursing based on current practice were emphasized. Rather than being viewed as visionary with a creative and futuristic conceptualization of health, Newman’s highly abstract grand theory as well as other grand theories of nursing was dismissed by the majority of nurses as far removed from the real world of everyday practice. As scientists in other disciplines revolutionized their former mechanistic worldviews to align more closely with a unitary-transformative paradigm, Newman’s theory of health has achieved greater acceptance by nurse scientists and practitioners, particularly transcultural nurses and holistic nurses.

Newman’s (1986, 1994) theory of health was inspired by her own nursing experiences, grounded in Rogers’ science of unitary human beings and later expanded to include premises from Bentov’s life process as expanding consciousness and Prigogine’s theory of dissipative structures. She reconceptualized health as a manifestation of an underlying unitary field pattern rather than as a health-disease dichotomy. Health was defined as a *unitary pattern of the whole*, reflecting the dynamic, evolving human-environment process of expanding consciousness which occurs within a multidimensional matrix of movement, time, and space. Consciousness was defined as the informational capacity of the whole. She utilized Bohm’s theory of undivided wholeness of reality and Young’s theory of human evolution to support the concept of unitary field pattern and the pivotal influence of human choice. Nursing practice was defined as a mutual process of attunement during which the underlying patterns of the client and nurse are identified and both individuals are transformed.

Newman was an early eloquent advocate for nursing to identify, develop, and differentiate a paradigm that addressed the unique knowledge of nursing embodied in practice and in scholarly inquiry. In collaboration with Sime and Corcoran-Perry (Newman, Sime, & Corcoran-Perry, 1991, p. 3), she defined the focus of nursing as “caring in the human health experience.” Differences between (a) the prevailing particulate-deterministic and interactive-integrative paradigms that had previously shaped nursing education, research, and practice and (b) a unitary-transformative paradigm for the discipline of nursing in the future were discussed. In the unitary-transformative paradigm, “a phenomenon is viewed as a unitary, self-organizing field embedded in a larger self-organizing field” (Newman et al., p. 4) and is identified by its pattern and its interaction with the larger whole. Change is unidirectional and unpredictable, with systems moving through stages of organization and disorganization to increasingly complex levels. Knowledge, which is personal and involves pattern recognition, is seen as a function of both the viewer and the phenomenon viewed.

In accordance with the unitary-transformative paradigm, Newman (1990b) described a model of differentiated nursing practice having three levels based on education, with advanced practice nurses having graduate preparation in the unitary-transformative paradigm. Newman proposed using nursing diagnoses that recognize patterns of person-environment interaction, rather than the North American Nursing Diagnosis Association diagnoses which reflect a static client in isolation from the environment. Her work subsequently moved away from conventional assessment and diagnosis as part of the nursing process toward nursing practice and research using her model of *research as praxis*, in which nursing interventions may be viewed as inherent in the mutual process of client and nurse pattern recognition.
Newman (1990a) identified the lack of conceptual fit between conventional quantitative research methods and the unitary-transformation paradigm of her theory of health. She posited that nurse scientists should use research as praxis methodology, a hermeneutic method of inquiry in which the client and nurse are coresearchers in identifying, describing, and verifying the client’s pattern of expanding consciousness from narrative data about the most meaningful events in the client’s life. Nurse scientists identified patterns of individual study participants in their practice, with qualitative comparison of patterns across study participants. Research as praxis is therefore both a research method and a transformative intervention.

Early quantitative research using conventional methods emphasized testing propositions derived from Newman’s (1979) conceptual framework of health, focusing on the concepts of movement, time, space, and consciousness (Engle, 1996). Nurse scientists included Engle, Guadiano, Mentzer, Newman, Schorr, and Tompkins. Healthy adults were studied in community and laboratory settings with predominantly small, nonprobability samples of male college students, female college students, older adults, and older women.

Subsequent elaboration and refinement of Newman’s (1986, 1994) theory of health shifted the focus of research to health as expanding consciousness, recognition of unitary field pattern, and research as praxis methodology (Engle, 1996). Nurse scientists included Lamendola, Moch, Newman, Schorr, and Schroeder. Small convenience samples of adults with and without health problems were studied in community and health care settings, including adults who exercised regularly, women with rheumatoid arthritis, women with breast cancer, adults with cancer, adults with coronary heart disease, and persons with HIV/AIDS. Much of the current research has demonstrated a transcultural theory application. International nurse scientists include Connor and Litchfield in New Zealand, Endo in Japan, Jonsdottir in Iceland, and Yamashita in Canada. The preceding studies have demonstrated the congruency of Newman’s theory of health and of the research as praxis methodology for pattern identification with different cultures (Engle & Fox-Hill, 2005).

Newman’s theory of health exemplifies the relationship between theory, research, and practice. The mutual process of evolving pattern recognition by the client and nurse using research as praxis informs nursing practice. As pattern recognition occurs, clients gain insights that create the opportunity for action. This practice approach exemplifies the participatory paradigm (Litchfield, 1999) emphasized by current health care systems that values shared decision making, collaboration, and partnering with multicultural clients, families, and interdisciplinary health care providers.

VERONICA F. ENGLE
EMILY J. FOX-HILL

(Florence) Nightingale

Florence Nightingale was born on May 12, 1820, in Florence, Italy, and died on August 13, 1910, in London, England. She is widely considered to be the founder of contemporary nursing and nursing education, as well as an early expert on health care statistics, hospital design and construction, and military health care. Nightingale’s remarkable success at decreasing the death rates during the Crimean War gave birth to legends of the Lady with the Lamp. Her personal fame was critical to her ability to gain attention for her ideas, including those about the value of female, well-trained, nurses. Nightingale’s birthday is remembered each year as International Nurses’ Day, and it is the anchor date for Nurses’ Week in the U.S.

Nightingale did NOT found the first nursing school: religious orders had been training nursing nuns for centuries, and the Kaiserwerth Institute opened its training school in 1836. Nightingale was much impressed by both the training techniques and quality of care evident at Kaiserwerth (Nightingale, 1851/1956), and later recommended some of
the same strategies for the Training School at St. Thomas. Nightingale’s contribution was the attention she brought to nursing education and in developing a system for nursing education that was secular and could be replicated in many different places. By the time she died, “Nightingale schools” could be found in 24 countries on five continents (Donahue, 1996).

Nightingale has further contributed to nursing by identifying what has become known as the meta-paradigm of nursing: person, environment, health, and nursing (Fawcett, 1978). She also established a firm tradition of basing nursing practice on carefully collected and analyzed data, the forerunner of today’s evidence-based practice emphasis. Nightingale’s most widely circulated work, *Notes on Nursing: What it is and What it is Not* (Nightingale, 1859/1969), was written not only for trained nurses, but for all women who would have the charge of another’s health, and explicated how all persons were able to learn the laws of health through observation, experience, and reflection. This is reflective of her view of nursing as part of a larger whole, an opportunity for all women to become useful citizens and develop their spirituality. Nursing was also meant to be a part of social progress, and Nightingale (1892) encouraged all women to use their influence to improve life for everyone.

Nightingale did not set out to develop a conceptual model for nursing, yet her writings contain the elements needed for nursing theories, a clear conceptualization of the client, nursing goals, and nursing interventions (Meleis, A. I., 2004). The essential concepts she considered were the patient, the patient’s environment, and nursing. She defined nursing as putting “the patient in the best condition for nature to act upon him” (Nightingale, 1859/1969, p. 133) through scrupulous attention to “fresh air, light, warmth, cleanliness, [and] quiet, and the proper selection and administration of diet” (p. 8). Health was defined as being “able to use well every power we have to use” (Nightingale, 1885, p. 1043). Health was affected by environmental factors, as well as by dietary choices and adequate amounts of exercise (Nightingale, 1863a).

Nightingale’s most far-reaching ideas may have been her conceptualizations of persons, their environments, and the interaction between them that affected health. She identified persons as having physical, intellectual, social, emotional, and spiritual components (Nightingale, 1859/1969). This holistic understanding was a unique one, distinct from that of other scholars of her day (Welch, M., 1986). Her holistic view of human beings continues to be a hallmark of nursing, differentiating it from other health care professions.

Nightingale’s insistence on the role of the environment in the health of individuals was also extremely innovative. She was adamant that deficiencies of light, fresh air, space, and sanitation were the chief culprits in disease, and she was fearful that the emphasis on antisepsis and disinfection would divert attention from the “dirt, drink, diet, damp, draughts, and drains” that needed to be addressed (Nightingale, 1859/1969, 1893/1949). She initially came to her beliefs about the environment’s role in health in Scutari, where she was greeted by filthy conditions and a hospital mortality rate of 57% (Cohen, I. B., 1984). Conscientious application of her principles of sanitation soon reduced the mortality rate to 2% and gave her access to the military medical chiefs. She refined her thoughts about environmental impacts on disease by studying the mortality rates and locations of English hospitals. She noted that hospitals in the congested city of London had mortality rates of 90.84%, while those in small country towns were much more successful at discharging their patients alive (Nightingale, 1863b). Healthy hospitals provided sufficient fresh air, light, and space, and subdivided the sick into separate buildings or pavilions. Using these data, Nightingale laid out detailed plans for the construction of hospitals, including site selection, and hospitals for special populations such as children. A careful reading of her principles of hospital construction demonstrates that her ideas are as salient now as when they were written.
A liberally educated woman, Nightingale brought the skills of a classical scholar to her study of nursing and health, and she was passionate about the use of data and statistics (Grier & Grier, 1978). She laid a strong foundation for nursing research and evidence-based practice, and strove for the use of knowledge in patient care, writing “What then? Shall we have less theory? God forbid. We shall not work better for ignorance” (Nightingale, 1851/1956, p. 6). It is a curiosity that over 100 years lapsed between her initial enunciation of these ideas and their general acceptance by the nursing profession.

Too many nurses equate Nightingale with outdated notions of etiquette and deportment, rather than with the volumes of data and statistics she produced. Even fewer are aware of her phenomenal grasp of politics and the use of personal power, tenacity, and shrewdness to achieve her goals (Baly, 1988). Professional nursing has made tremendous strides since Nightingale set out to establish the school at St. Thomas’. It is almost mind-boggling to think where the profession (and discipline) might be today without that 100 year gap.

Tamara L. Zurakowski

Nosocomial Infections

Approximately two million nosocomial (hospital-associated) infections occur annually in the United States, resulting in increased morbidity, mortality, and cost (U.S. Department of Health & Human Services, 2000). Despite a decrease in the average length of hospital stay in the United States from 7.9 days in 1975 to 5.3 days in 1995, the rate of nosocomial infections rose from 7.2 per 1,000 patient-days to 9.8 per 1,000 patient-days, respectively; an increase of 36%. Hospital surveillance data indicate a 5% nosocomial infection rate, or an incidence of 5 infections per 1,000 patient-days; however, the infection rate may be closer to 10% in larger institutions (Wenzel & Edmond, 2001). The length of hospital stay due to nosocomial infection can increase up to 4 days for a urinary tract infection (UTI), 8 days for a surgical-site infection (SSI), 21 days for a bloodstream infection, and up to 30 days for pneumonia. The overall mortality rates associated with nosocomial bloodstream infections and pneumonia can be as high as 50% and 71%, respectively. In addition, these infections have attributable mortality rates of 16% to 35% (Jarvis, 1996). Serious nosocomial bloodstream infections are associated with central venous catheters (CVCs) placed in patients in intensive care units (ICUs), and it has been estimated that approximately 80,000 CVC-associated bloodstream infections occur in ICUs each year in the United States (O’Grady et al., 2002).

Pneumonia is the second most common nosocomial infection in the United States, following UTIs, which can add 7 to 30 days to a hospital stay at an average cost of $4,947 (Jarvis, 1996). Nosocomial pneumonias are mostly bacterial, with gram-negative bacilli generally the predominant organisms. However, Staphylococcus aureus (especially methicillin-resistant S. aureus, MRSA) and Streptococcus pneumoniae have emerged as significant pneumonia pathogens. Also, outbreaks of Aspergillus pneumonia have been reported in granulocytopenic bone-marrow transplant patients. Although patients with mechanical ventilation are not a major proportion of patients with nosocomial pneumonia, they have the highest risk of developing an infection (Tablan et al., 1994).

Surgical-site infections rank third among reported nosocomial infections, accounting for 14% to 16% of all infections (Mangram, Horan, Pearson, Silver, & Jarvis, 1999). According to Jarvis (1996), hospital stays increased 7 to 8 days for each SSI, at a cost of $2,734. The main criterion for an SSI is that it occurs within 30 days after surgery (or within 1 year with an implant). Studies show that most SSIs occur within 21 days of surgery, and 12% to 84% of all SSIs are diagnosed after patients are discharged from the hospital. Declines in average length of hospital stays and increasing numbers of outpatient surgical procedures place limitations on...
surveillance to identify SSIs (Mangram et al.). Avato and Lai (2002) found that 72% of post-coronary artery bypass graft SSIs were identified after discharge, compared to 28% before patients were discharged. Without postdischarge data, including surveillance data for SSIs by nurses and other health care providers in clinics and ambulatory care settings, meaningful comparisons cannot be made, making it difficult to identify best practices to improve patient safety (Goldrick, 2003).

The total cost of nosocomial infections to society is unclear; however, it is estimated that they are the fifth leading cause of death in the United States, with approximately 90,000 deaths attributed to such infections annually (Haley, Culver, White, Morgan, & Emori, 1985). In 1992, the total cost of nosocomial infections in the United States was estimated to exceed $4.5 billion (CDC, 1992), which converted to $5.7 billion in 2001 dollars (Stone, P. W., Larson, & Kawar, 2002). In prospective payment systems based on diagnosis-related groups, Jarvis (1996) estimated that the average cost to the health care system for nosocomial infections in 1996 ranged from $576 for each UTI to $22,000 for each bloodstream infection.

In an audit of 72 distinct results in published studies, P. W. Stone and colleagues (2002) found that 40% of the infection control interventions studied were cost-saving interventions. For example, Papia and colleagues (1999) found screening high-risk patients for MRSA colonization on admission prevented nosocomial transmission and was cost-effective. Kotilainen and Keroack (1997) found that extending ventilator circuit changes from 72 hours to 7 days was cost-effective and did not increase rates of nosocomial pneumonia in ICU patients.

Handwashing is considered to be the most important infection control practice to prevent the transmission of pathogenic microorganisms, and studies demonstrate a relationship between improved hand hygiene and reduced infection rates (CDC, 2002c; F. Pittet, 2001). However, observational studies indicate that adherence to recommended hand-hygiene procedures among health care providers had an overall average of 40%, with rates ranging from 5% to 81% (CDC). Pittet reported that alcohol-based hand rubs may be better than traditional handwashing because they require less time, contribute to sustained improvement in compliance, and are associated with decreased infection rates. A study comparing the efficacy of an alcohol-based hand rub versus conventional handwashing using an antiseptic soap found that the alcohol-based hand rub was significantly more efficient in reducing hand contamination (Girou, Loyerau, Legrand, Oppein, & Brun-Buisson, 2002). Another study found that the introduction of easily accessible dispensers with a waterless alcohol-based antiseptic led to significantly higher handwashing rates among health care providers (Bischoff, Reynolds, Sessler, Edmond, & Wenzel, 2000). The CDC’s revised hand hygiene guidelines strongly recommend an alcohol-based hand rub for routine decontamination of hands in certain clinical situations; however, the CDC also emphasizes that hands must still be washed with soap or an antimicrobial product and water when visibly soiled or contaminated with blood or other body fluids.

Nurses play an important role in the prevention of nosocomial infections, and represent the first line of defense for such adverse outcomes. In a study, the American Nurses Association (2000b) identified five adverse outcomes related to nurse staffing: length of stay, pneumonia, postoperative infections, pressure ulcers, and UTIs. Multiple regression analyses found statistically significant inverse relationships between nurse staffing and all five outcome measures. A recent study reported that a higher proportion of hours of care provided by registered nurses (RNs) was associated with lower rates of nosocomial infections (Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002). Other studies have shown that health care facilities with appropriate levels of nursing staff can prevent infections. For example, Cho, Ketefian, Barkauskas, and Smith (2003) showed that a 10% increase in RN staffing decreased
the odds of a patient acquiring nosocomial pneumonia by 9.5%. Kovner, Jones, Zhan, Gergen, and Basu (2002) found an inverse relationship between RN staffing and post-surgical adverse events. A study of the effect of nurses’ educational level on surgical patient mortality found, after controlling for all other risk factors, that surgical patients who were cared for in hospitals where a higher proportion of direct-care RNs held bachelor’s degrees had a better survival rate over those treated in hospitals where a lower proportion of staff nurses held bachelor’s degrees (Aiken, Clarke, Cheung, Sloane, & Silber, 2003). Although these studies do not imply causation, nurses who incorporate evidence-based infection prevention and control recommendations into their practice can decrease infectious adverse events and the odds of failure to rescue while reducing health care costs.

BARBARA A. GOLDRICK

Nurse-Patient Interaction

Nurse-patient interaction refers to the dyadic reciprocal interactions that occur between nurses and patients in the context of providing and receiving nursing care. Early nursing theorists such as Peplau, Orlando, Travelbee, and Widenbach, who drew attention to the process of interaction in nursing practice, prompted researchers to describe, operationalize, and measure the efficacy of nursing interactions. In 1977, Diets and Schmidt classified the rapidly expanding research on nurse-patient interaction as descriptive or correlational studies, studies that measure the indices of nursing by using hypothetical interactions, and studies that describe or evaluate nursing interactions using conception or interaction frameworks borrowed from other disciplines (e.g., counseling psychology). These initial research efforts were largely focused on single channels of communication (e.g., nurse conversation or touch) and produced only partial information about the interaction. Resulting failures to capture relevant clinical data prompted the redesign of instruments and studies specifically for examining nurse-patient interactions. As one example, the Nurse Orientation System developed by Diets was used by researchers to examine the effect of nursing on patient experiences of pain (Diets, Schmidt, McBride, & Davis, 1972).

Researchers continued to study those aspects of the nurse-patient interaction that were quantifiable, using predominantly deductive approaches; and despite the use of increasingly sophisticated techniques, the results of many studies raised concern about the quality of nurse-patient interactions. Some researchers attempted to explain their findings in terms of nurses’ lack of communication skills or their busy workloads; others pointed to problems inherent in the research, citing a lack of attention to the patient’s role in nurse-patient interaction, unsubstantiated assumptions about the nature of nurse-patient interactions, and failure to take into consideration important contextual factors that influence nurse-patient interactions as major issues. In addition, in the absence of adequate definitions of nurse-patient interaction or its components (e.g., touch) researchers used narrow and simplistic conceptualizations. As a result, in deciding a priori what behaviors were important to study, researchers risked missing important behaviors or focusing on insignificant behaviors; as a consequence, they ended up with incomplete or invalid descriptions.

As support for “caring” in nursing developed in the 1980s, theorists drew attention to the complexities inherent in the process of providing nursing care, stimulating a resurgence of interest in examining nurse-patient interactions with a variety of new approaches, such as grounded theory, conversational analysis, ethology, and discourse analysis. By using inductive approaches, researchers identified nurse and patient behaviors that were important to study (rather than deciding this a priori), explored interaction patterns from the perspective of the nurse and patients, and considered important factors of context and relationship. Studies completed by researchers such as Carl May, Maura...
Hunt, Jocalyn Lawler, and Janice Morse are representative examples. Using these new approaches, researchers identified exceptional nursing interaction skills, such as “tactics,” “comfort talk,” “minifisms,” and other previously unrecognized interaction strategies that nurses typically used in clinical settings—skills that were rarely part of communication courses and often devalued.

One of the most important developments in the study of nurse-patient interactions is the use of video technology. Videotaping observations preserves the observational context, verbal content, nonverbal behaviors, and interactive processes for analysis and coding. Of particular advantage is the ability to repeatedly review videotapes, both in real time and in slow motion. This facilitates in-depth study of a wide range of simultaneous behaviors, including rarely occurring events and subtle or rapid changes in behavior. Videotaped observations are particularly useful when studying interactions with patients who are preverbal, unconscious, or otherwise unable to recall interactions with sufficient detail.

Although new lines of research show promise and appear to be unraveling some of the unique complexities inherent in nurse-patient interaction, much work remains to understand nursing interactions as they occur in health care settings, including patients’ homes or other community settings. Far more attention has been given to identifying and describing components and patterns of nurse-patient interaction than studying the efficacy of different types of interactions in relation to patient outcomes. It appears that some patterns of interaction may be powerful therapeutic tools, yet more systematic investigation is needed to demonstrate these effects. Furthermore, negative or undesirable psychological and physiological sequela associated with interaction patterns should be documented.

Although the definition of nurse-patient interaction has not received careful attention, the focus has been on the verbal and nonverbal behaviors of the nurse. Yet increasingly, patients are being encouraged to take an active role in decision making and their nursing care. To develop innovative and supportive strategies to foster collaboration in care and involvement in decision making, a sound understanding of the nature of interactions between nurses and patient, with a strong focus on the role of patient behavior in these interactions, is necessary. In addition, the links between nurse-patient interaction and types of nurse-patient relationships must be explored.

JOAN L. BOTTORFF

Nurse-Patient Relationship

The interpersonal relationship between nurses and patients has become an important subject of discussion, theorizing, and research since Peplau and Orlando introduced the concept of the nurse-patient relationship as an essential component of nursing practice. Recognition of the need for individualized nursing care, the introduction of new approaches to care delivery (e.g., primary nursing), increasing concerns about dehumanization related to advances in technology, and the emergence of theories delineating caring as a pivotal concept in nursing have reinforced the centrality of the nurse-patient relationship in contemporary practice. The nurse-patient relationship is now viewed as essential content in nursing curricula, and clinicians value the development of therapeutic relationships with patients as a significant part of their work. Yet despite the overwhelming endorsement of the importance of the nurse-patient relationship, the practical difficulties associated with developing relationships remain unresolved. Of importance are issues related to balancing personal involvement and professional detachment. Other important issues concern building relationships in contexts where the organization of nurses’ work limits involvement or where reporting practices undermine the development of trust. Issues also arise from challenges related to renegotiating relationships in response to changes in patient dependence and vulnerability.
Nurses have attempted to identify the unique characteristics of the nurse-patient relationship through their conceptualizations, although to date there is little evidence to support this assumption. The nurse-patient relationship has been described as a therapeutic instrument with levels or types of involvement and as an interactive process requiring the active participation of both patients and nurses. Important components of the nurse-patient relationship include concepts such as empathy, trust, respect, knowing the patient, commitment, advocacy, and social control. Nursing writers critiquing current conceptualizations of the nurse-patient relationship have pointed out the failure to consider the collective nature of nursing work and other realities of everyday practice such as the provision of bodily comforts. Theorists such as Sally Gadow and Jean Watson have attempted to explain the nature of the links between nurse-patient relationships and positive health care outcomes, and there is some empirical evidence that supports these assertions.

Although researchers have begun to explore the complex dynamics involved in nurse-patient interactions and their therapeutic potential, there is relatively little empirical data related to what takes place in everyday clinical settings to support current conceptualizations of the nurse-patient relationship. Early investigations of nurse-patient relationships were influenced by definitions from the social sciences and the traditions of logical positivism. However, explanations of the relationship proved difficult to quantify. With increasing acceptance of qualitative research methods in nursing, researchers have turned to a variety of new approaches to examine patterns of relationships in nursing, including grounded theory and narrative analysis. These studies have revealed important new information about nurse-patient relationships, some of which has contradicted professional rhetoric surrounding the development of these relationships.

The complexities inherent in the nurse-patient relationship demand that the research agenda be augmented by micro-level approaches (such as sociolinguistics, ethnography, and in-depth videotape analysis), advances in interpretive methodology (e.g., using a feminist perspective), and triangulation (e.g., triangulating conversational analysis with data from ethnographic research), as well as by taking advantage of constructionist, critical, and postmodern theory to understand the dynamics of nurse-patient relationships. For example, observational studies of the development of nurse-patient relationships as they occur in everyday clinical settings would augment nurses’ narratives of memorable relationships. Some researchers are exploring the potential value of using video recorders to capture the development of relationships over time. Detailed analysis of videotaped patient and nurse behaviors at the interaction level have produced some encouraging results.

For the most part, researchers have focused on the affective dimensions of nurse-patient relationships by interviewing nurses, particularly those who were able to provide exemplar cases. Other dimensions of the nurse-patient relationship should be examined, as well as outcomes, as they relate to different phases and types of relationships. Attention must be given to the patient’s perspective and role in shaping relationships.

JOAN L. BOTTOFF

Nurse Researcher in the Clinical Setting

The term nurse researcher in the clinical setting is used to denote nurses who have research as one of their responsibilities or their sole responsibility and are at least partly supported by salary from a clinical setting, inclusive of hospitals, clinics, and other agencies providing health care to patients. Such nurses are usually prepared at the doctoral level but sometimes at the master’s level. The additional responsibilities of these individuals may include education, quality improvement, evaluation in the clinical facility, and the requisite administration accompanying those
duties. The position in the clinical setting can be either line or staff. The individual also may be jointly appointed to a school or college of nursing or another health-related institution for a percentage of their time.

The specific responsibilities for these individuals include conducting research and assisting others in conducting, applying, and utilizing research. Although those are the explicit role responsibilities, the nurse researcher in a clinical setting is expected to affect the nursing staff positively in several indirect ways. The nurse researcher is an educator, teaching about the research process, guiding critiques of completed research for application and utilization, and developing research days for sharing of research. The researcher is involved in the professional development of staff, facilitating staff to present and publish their databased projects under the tutelage of the researcher. Nurse researchers in clinical agencies usually have the responsibility to represent the agency with outside researchers using the agency as a data collection site. In the role of change agent, the researcher helps to make practice research-based. The change agent role and the researcher role are often combined with the quality control role, where pre- and post-monitoring or longitudinal monitoring around a change are needed.

To carry out these responsibilities, the researcher must possess several attributes. Knowledge and skills in the research are the most obvious, but equally important are people skills (e.g., motivating, confirming, guiding professional development) and conceptual skills. The latter set of skills comes into play in several ways, for example, identifying a researchable problem and reworking complaints and questions into a basis for finding solutions.

A major difference between the academic researcher and the nurse researcher in the clinical setting is the mission of the employer. The university has a societal responsibility for knowledge advancement. The health care institution has a responsibility for health care. Mission is a key work environment characteristic, and the work environment has a profound impact on the outcomes of one’s work. This is especially true for nurse researchers in clinical settings, whose outcomes are influenced by their environment. Within clinical agencies the following have been associated with research productivity: (a) research culture (policies and procedures indicative of a consistent commitment to nursing research, such as the presence of research in the agency’s mission); (b) resources for research activities (e.g., library holdings, funding of research activities, presence of other nurses with advanced nursing education); (c) attitudes (e.g., belief that the public and other professional colleagues value nursing research); and (d) esprit, a positive group work morale. Clearly, these nurse researcher roles are complex and not an insignificant addition to any staff.

One of the first tasks for the nurse researcher new to a setting is to assess the work environment, including the resources available. In particular, the nurse researcher cannot function well if isolated from others with research skills. Baccalaureate graduates with a foundation in research, master’s-prepared nurses who have completed a thesis or have had strong intermediate research instruction, and doctorally prepared nurses with advanced research preparation are important resources. The last may not be part of the researcher’s organization but available through an affiliated university. The availability of university-educated nurses is both an indication of the education programming needed and whether the environment has a “critical mass” of nurses for research activities.

Karin T. Kirchhoff  
Patricia A. Martin

Nurse Staffing

Nurse staffing is the number and type of workers employed by an agency to provide nursing care to the persons served by the agency. Nurse staffing numbers are typically given in full-time equivalents [FTE] that rep-
resent fifty-two 40-hour work weeks of five
8-hour days, or 2,080 hours, the typical an-
ual paid work time for a full-time employee.
The hours that individuals actually work
would be fewer and depend on paid benefit
hours (vacation, holiday, sick, etc.) that are
included in each FTE-paid 2,080 hours. The
advent of 12-hour shift schedules has either
reduced the full-time work week to three 12-
hour shifts, 36 hours, or has extended the
work week by 2 hours to 42, typically three
12-hour shifts one week and four 12-hour
shifts the next, averaging 42 hours per week.
Hours are reported by the type of worker
used or needed and staff are classified as regis-
tered nurses [R], licensed practical (or voca-
tional) nurses [L], and aides [A], variously
called attendants, technicians, or assistants.

Nightingale (1863b) identified ward size
as a contributor to variation in hospital nurse
staffing. Smaller wards (like intensive care
units or ICUs) have high fixed costs, sug-
gest both the relevance of new applica-
tions for studies of ward design and use, and/
or controlling for ward size and use in
staffing studies.

After the publication of the Institute of
Medicine report, Nursing Staff in Hospitals
and Nursing Homes: Is it Adequate?, re-
search on nurse staffing has been advanced
by reports that have employed large data sets
where variations in staff numbers and com-
position have been used to explain differences
in end results of hospital care. Prominent
among the studies are those reported in med-
ical journals by Aiken, Needleman, and their
colleagues who analyzed abstracted patient
records and hospital characteristics and re-
ported structure-outcome associations (Ai-
ken, Clarke, Cheung, Sloane, & Silber, 2003;
Aiken, Clarke, Sloan, Sochalski, & Silber,
2002; Needleman, J., Buerhaus, Mattke,
Stewart, & Zelevinsky, 2002). The definition
of nurse was refined to incorporate consid-
eration of basic nursing education, and hospital
outcomes were extended beyond mortality
to include complication rates and rates of
failure-to-rescue (Aiken et al., 2003, 2002;
Needleman et al.). Results reported in these
newer, aggregated staffing studies have
yielded nurse-to-patient ratios and have pro-
vided health policy with a metric that may
replace the standardized nursing hours per
patient day (NHPD). Studies of this type,
while important, have problems associated
with standardization, selection of variables,
and multicollinearity (Silber, Rosenbaum, &
Ross, 1995). Mark and Saylor (1999) out-
lined the methodological issues associated
with large samples of hospitals or patients
that employ existing data for secondary anal-
yses or study specific prospective data.

Analyses of nurse staffing are performed
retrospectively (essentially a count of the
workers who were present and cared for the
patients who were present) and prospectively.
While nurse staffing research has been pro-
spective, in that studies attempt to predict the
number and type of worker needed to care
for specified patient (or person) groups, the
more influential quantitative research reports
have looked back on the nurse staffing that
was in place when patient samples were
drawn and used regression analyses to both
explain and predict.

Implicit in the study of nurse staffing is an
expectation that research will yield results
that are generalizable—that is, others in the
specified universe can safely apply the find-
ings from valid and reliable studies and expe-
rience comparable results. It may be unrea-
sonable to expect a high degree of standard-
ization among the individuals (patients) who
use nursing services, those (nurses) who pro-
vide them, and the agencies that enroll the
patients and employ the nurses. Yet it seems
worthwhile to understand the reasons for the
one consistent finding in nurse staffing analy-
ses: some hospitals (where nurse staffing has
been studied most) provide twice as much
nursing care for their patients as other similar
institutions (Dartmouth Medical School,
1998).

The three traditional perspectives from
which to study nurse staffing are: (a) task,
procedure, intervention, or work analysis; (b)
by disease and treatment; and (c) through
nursing viewpoints.

Nurse staffing studies based on task or
work analysis emanate from F. W. Taylor’s
Principles of Scientific Management (1911). These were first applied to hospital work in the 1920s and have been in use since that time. The most important development of work-analysis methods applied to hospitals was the linkage J. Connor (1960) established between nurse staffing and variability in patient types and numbers. Patients are classified based on the type of work they generate, and the classifications are mapped to an unstandardized number and mix of nursing staff. It is uncommon to find reports that compare patient classification done in one institution to that of another.

A great deal of attention has been directed to the reliability of patient classification techniques, and few reports validate patient classification beyond the face validity established in the agency using the instrument. Two nurses classifying the same patient, at the same time, in the same way, achieve perfect reliability. Because of differences in nurses, it is not infrequent that ratings of the same patient differ. To bypass this reliability concern, prototype patient classification instruments have been developed. Prototype instruments cumulate weighted factors (items from a list of procedures done or a list of patient conditions for which interventions are needed) into scores that two nurses can agree on, but which may have been derived from different factors. The result is to refer to the classified patient as a member of class I, II, III, or IV, rather than as a patient who needs assistance with toileting, feeding, and/or ambulating. Further validity is lost because psychosocial aspects of care, long described as essential to effective care, have never been associated with weights reflecting the time nurses spend with patients.

Failure to specify intended results and measure the capacity of different patterns of work and worker to achieve those results is the most common problem with work-analysis techniques for the study of nurse staffing. Few have studied the appropriateness of either the task or the performer in achieving a specified end result. Work-analysis methods are criticized because they result in standards of care that are inconsistent with clinical research results, qualitative studies of nursing care, and nearly all concepts or theories of nursing. In one concept of nursing work, nurses assist individuals to perform their own tasks/procedures/interventions through encouragement and education as a means to their independence (Henderson & Nite, 1997).

Nurse staffing research has been linked to the diseases and treatments afforded patients on hospital specialty units. Most hospital inpatient wards care for specific patient groups organized by the physicians who admit the patients. Common groupings include orthopedics, cardiology, oncology, neurology, respiratory, gynecology, psychiatry, obstetrics, pediatrics, geriatrics, and many others. The earliest nurse staffing studies differentiated medical from surgical units, and many recent reports are addressed to even more specific physician and patient disease groupings, for example, HIV-AIDS.

The assumption that underlies this representation of patients’ disease as the basis for nurse staffing is that the care rendered is homogeneous for the members of the patient group and different from other groups and that it is associated with a specific mix and number of nursing staff. Also implicit in the use of disease and treatment classification for the assignment of nursing staff is that nursing care is prescribed by physicians. The diagnosis related group (DRG) is the most common representation of medicine applied to nurse staffing. Medical methods for computing staff needs should be used with caution as much nursing literature addresses the differences in individual human beings, even if they should be suffering from the same disease (Henderson & Nite, 1997). Staffing methods based on medical diagnoses and treatment are inconsistent with clinical nursing research results, qualitative studies of nursing care, and nearly all concepts or theories of nursing.

A clear exposition for the representation of time in nurse staffing research is needed. In nurse staffing research, time can be represented in three ways: by nurse (or nursing) hours per patient-day, by nursing hours per case, and by length of hospital stay (LOS).
The association between nurses’ time and length of patients’ stays raises questions of causality. Are physicians and medical care responsible for variability of length of stay (and thus nursing hours per case)? Development and use of LOS norms established by physicians suggests that doctors control LOS and nursing hours per case. DRGs are a poor predictor of LOS. Further, LOS variability within DRGs has been explained and predicted from nurses’ classifications of patients (Rosenthal, Halloran, Kiley, Pinkley, & Landefeld, 1992; Rosenthal, Halloran, Kiley, & Landefeld, 1995). If the discharge decisions made by physicians are more optimally made (in terms of care quality and cost) by nurses, ineffectiveness and inefficiency results.

Research on staffing should be intrinsically linked to concepts and theories of nursing as well as to the scientific and expert opinion literature on nursing. Existing methods for studying nurse staffing that employ work measurement methods, or that assume nursing care is derived from medical care, should be viewed with caution. Much more study of nurse staffing is required for generalization. Needed research should take place on two levels. First and foremost, differences in nursing care and their effects on patients should be examined at the bedside. Second, comparisons should be made among institutions using standardized methods that capture valid, reliable, and retrievable data from nurses about patients. These institutional comparisons should also incorporate data about nurses (education, experience, assignments, etc.) so that inference can be drawn about nurses’ contributions to the end results of patient care.

Edward J. Halloran

Nursing Assessment

Assessment is widely recognized as the first step in the nursing process. Nurses use assessment to determine patients’ actual and potential needs, the assistance patients require, and the desired outcomes to evaluate the care provided. There is consensus that nursing assessment is crucial as the starting point for establishing relationships and for determining how patients and nurses will subsequently interact. Assessment begins with the initial nurse-patient encounter; it involves collecting information to plan care and is an important basis for determining which interventions can be delegated to other providers. Information collected includes social and health history data, which come directly from patients, or physical assessment data, which are derived from physical assessment techniques and diagnostic studies.

The purposes of assessment are to begin to establish a therapeutic relationship and to identify the patients’ strengths and problems in order to determine appropriate interventions. Both the process and content of assessment are important. Process includes using communication and physical assessment skills to establish a relationship and to gather needed information. The important content will vary with the patient but generally includes physical assessment, other diagnostic data, assessment of the meaning of the health experience, quality of life, symptoms, and cultural factors that may affect health.

Florence Nightingale was among the first to discuss nursing assessment (Nightingale, 1860/1969). She believed that observation was essential, and provided specific guidance about nursing assessments. Nightingale noted that the best process for interactions (including assessment) was to: “Always sit down when a sick person is talking business about nurses (education, experience, assignments, etc.) so that inference can be drawn about nurses’ contributions to the end results of patient care. Assessments must be complete and detailed. Nightingale noted that “leading questions” are “useless or misleading” (p. 107). Rather than asking for evaluation (e.g., asking if a night’s sleep was good), details should be asked for (e.g., the number of hours the person slept). These details need to be reported rather than just the opinions derived from them. Nightingale attributed physicians’ not believing nurses’ assessments to nurses’ failing to provide these details (p.
Nightingale also gave examples of information that was misleading because it was incomplete or based on incomplete observations (e.g., the difference between “how often the bowels acted” and the number of times the “utensil” was emptied, p. 107).

Nightingale discussed the content needed in assessment, which included the importance of individualizing assessment, as “taking averages” is misleading (p. 120). She noted the need to understand “all the conditions in which the patient lives” (p. 121), including lifestyle factors, social conditions, and hygiene. Among the areas that ought to be observed were patients’ dietary intake, symptoms and their meaning, changes in patterns (such as physical abilities), and “idiosyncracies” of patients. She noted that “peculiarities might be observed and indulged much more than they are” (p. 117).

Assessment begins the nurse-patient relationship and determines how they will work together. Considerable research has been conducted on factors that influence interpersonal relationships. Several classic works in nursing have dealt with the process of establishing these relationships, including the roles in nursing at various phases in relationships and the importance of observation and communication, including use of self-disclosure and empathy, in establishing relationships (e.g., Peplau, 1952).

Communication is essential in assessment, and is both the means for nurses and patients to influence each other and the process that leads to therapeutic and supportive influences on patients’ health. Patients’ successful communication of their needs to nurses is vital to individualized care. Individualized patient care has been found to produce more favorable outcomes and to reduce the cost of health care (Attree, 2001).

Although assessment and communication skills have been taught for decades, many studies have found that nurses had difficulty facilitating communication and that the patients’ analysis of communication is often omitted. A variety of factors have been related to low facilitation of communication, including management in some health care settings, increased patient volume, the value placed on tasks, and not having the attitudes, desires, and skills needed to effectively communicate (Kruijver, Kerkstra, Bensing, & van de Wiel, 2000). Nurses have also been found to be confused about the purpose of nursing assessment. Observations have found that nurse-patient interactions are superficial, routinized, and task-related, and that nurses create barriers in communication.

Surveys of nurses revealed that most had received training in communication skills, felt they were fairly effective in using these skills, and felt that the skills are important to their jobs. However, they also thought they needed and were willing to receive additional training. Communication training programs have had mixed results, including that benefits did not persist, that changes were limited, and that nurses taught communication skills did not improve in their ability to elicit and identify patient concerns despite increased use of the skills learned. The Study to Understand Prognoses and Preference for Outcomes and Risks of Treatment (SUPPORT) was a striking example of a communication intervention that did not improve outcomes (Lynn, J., et al., 2000).

Physical assessment skills are routinely included in nursing curricula. They include (a) a general survey of patients’ appearance and behaviors; (b) assessment of vital signs, temperature, pulse, respiration rates, and blood pressure; (c) assessment of height and weight; and (d) physical examination to assess patients’ structures, organs, and body systems. Physical assessment can be complete, assessing all of the persons’ organs and body systems, or modified to focus only on areas suggested by the persons’ health history or symptoms.

Perceptions of symptoms and quality of life are important areas for assessment. Both symptoms and quality of life are primarily subjective experiences, influenced by many factors but knowable primarily through patients’ descriptions of their experiences. Moreover, symptoms that are not properly managed can be life-threatening.

Nurses need to explore the meaning of illness from patients’ perspectives in order to help patients mediate between the medical
The role of fighting disease and the patients’ perspectives (Steeves, Cohen, & Wise, 1994). The link between meaning making and the experience of illness and treatment may help elucidate important nursing interventions that can assist patients in meaning making in ways that are helpful to coping with their experiences and symptoms (Kleinman, 1988).

Understanding experiences of illnesses and treatments of members of diverse cultures is important but currently limited. Many have argued for the need to understand clients’ lived experiences and their interactions in order to provide quality nursing care (Cohen, M. Z., & Palos, 2001). Producing unbiased and culturally appropriate knowledge is both important and complex (Cohen, M. Z., Phillips, & Palos, 2001). This knowledge is important because those from diverse cultures may differ in ways that profoundly affect their health, what we need to assess, and the interventions that will be effective.

Despite consensus about the importance of understanding patients’ perspectives, patients’ descriptions show a consistent and persistent discrepancy between their views of their health care experiences and professionals’ understandings of these experiences. The meanings that patients attribute to their experiences help determine what needs they have and how these needs can best be met. Since action is based on meanings, common meanings between nurses and patients will provide the most effective base for helpful nurse-patient relationships. Research indicates that nurses need to understand the patients’ perspective in order to deliver effective nursing care, but that often nurses assume they know what their patients need without eliciting actual patient concerns. Effective assessment is the essential basis for providing effective nursing care.

MARLENE ZICHI COHEN

Nursing Centers

Nursing centers, also known as nurse-managed centers (NMCs), nurse-managed health centers, or community nursing organizations, provide nursing services to individuals, families, and communities and serve as unique sites for linking nursing research, education, service, and faculty practice. Types of services provided range from health teaching, assessment, and referral to increasingly full primary-care services including health promotion, risk reduction, and management of health-related issues common to primary care including prenatal care.

Historically, the nursing center idea originated in the early 1900s with the establishment of district and public health nursing. Later examples were Kentucky Frontier Nursing Services and the New York City Loeb Center. During the 1970s, storefront clinics, independent nursing practices, and community nursing center demonstration sites represented the nursing center concept. During the 1980s, many schools and colleges of nursing, as well as hospitals, clinics, and public health agencies, established nursing clinics. With increasing emphasis on primary, managed, and interdisciplinary care in the 1990s, nursing centers entered into partnerships and business agreements.

Based on a national survey of academic nurse-managed centers, there are close to 200 such centers across more than 90 schools of nursing (Sebastian, Barkauskas, Stanhope, Pohl, & Vonderheid, 2004). In addition, 22 reported closing in the past 5 years, the primary reason being financial. There has been increasing emphasis on financial sustainability of these centers as reported in the literature (Vonderheid, Pohl, Barkauskas, Gift, & Hughes-Cromwick, 2003; Vonderheid et al., 2004). In addition, in the past 5 years there has been an increased effort to bring NMCs into the health care system through credentialing practitioners, obtaining federal funding for community health centers, and other reimbursement efforts. With increasing emphasis on full primary-care services, nursing centers are developing more sophisticated business plans and entering into partnerships and business contracts with a broad range of consumers. Sound fiscal management has emerged as a critical skill for sustainability (Frenn, Lundeen, Martin, Riesch, & Wilson,
Faculty practice, independent nursing practices, and entrepreneurship are the third type of model. Whether these practices are linked with nursing centers or set up as part of a network of practices within a school of nursing, they often serve a specific population or need in the community.

Research on and in nursing centers is both quantitative and qualitative. Research utilization is evident in the development of standards of care and protocols. Research in centers has been descriptive of patient/clients, services provided, patient/client satisfaction, differentiation of nurse practitioners (NPs) versus physician roles, and student experiences and satisfaction with those experiences. In addition, outcomes of care, using the Health Plan Employer Data and Information Set (HEDIS) and other national benchmarks, as well as cost of care in nursing centers have been more recently documented along with intervention studies and their outcomes. Positive outcomes with chronic disease (e.g., hypertension, diabetes, asthma) have been documented (Barkauskas, Pohl, Breer, Benkert, & Wells, in press).

Patients and families who receive care in nursing centers report an extraordinary high level of satisfaction with their care (Benkert, Barkauskas, Pohl, Tanner, & Nagelkerk, 2002). Findings from focus groups report that the NP spends more time with patients, prevents emergency room visits, provides patient-centered care, and provides this care in the community close to their work, home, or school. Findings indicate that nursing centers are located in community settings such as public schools, public housing, churches, mobile vans, other community agencies, and small community settings. Patient volume per clinic is relatively small but large enough to be sustainable. Although reimbursement and credentialing of NPs continue to be issues, there are increasing contracts with managed care organizations.

The Midwest Nursing Center Consortium has been funded by the Agency for Healthcare Research and Quality as a Research Network Group (University of Wisconsin, Milwaukee) as has the Yale School of Nursing. This fund-
ing facilitates the infrastructure for research in nursing centers. In addition the creation of a data warehouse for nursing centers that is funded by the W.K. Kellogg foundation advances the research agenda for nursing centers.

The use of electronic health records (EHRs) and electronic practice management systems are changing the way nursing centers do business. Although EHRs are still relatively rare, it is expected that these will be critical to creating the national database and warehouse on nursing centers.

Development of a national database and warehouse is critical for nursing centers to continue to move into the main health care area. The National Network for Nurse Managed Health Centers (http://www.nnnmhc.org) is developing such a database and warehouse. The standardization of nursing language diagnoses, interventions, and outcomes contributes to understanding the process of care in these centers. Nursing centers offer an excellent choice for cost-effective, high-quality care with high patient/client satisfaction. Nursing centers provide a very rich resource for student experiences that is congruent with the model of care learned in the classroom (Tanner, Pohl, Ward, & Dontje, 2003), service to the community, research for faculty and students, and faculty practice. They provide a model of care that might be replicated on a larger scale and inform policy as health care costs and health care systems are reexamined.

Nursing Diagnosis

The nursing diagnosis movement began in 1972 in a meeting of a group of nurses discussing the need for better nursing documentation. Those nurses were concerned that nursing information was not being valued nor was it being used to demonstrate the effectiveness of nursing care. Something was missing. The patients’ life situations and problems that nurses were dealing with on a regular basis were not well described by the patient’s medical diagnoses. It was apparent to them that nursing needed a standard set of nursing-specific terms or names for the patient situations and problems they were treating independently. And thus began the effort to develop nursing “diagnoses” that would describe the responses patients were having to their illnesses, life transitions, and lifestyle changes. That work eventually evolved into an organization (the North American Nursing Diagnosis Association, now NANDA, International) of nurses interested in developing names for nursing-specific diagnoses and later for nursing interventions and outcomes as well.

Although interest in nursing diagnosis waned in the late 1980s and early 1990s, it began to revive as the move toward electronic health records accelerated. Nurses began to realize that the only way to be sure nursing information was available, retrievable, and usable in an electronic system was if it was coded so the computers could read it. “Free text” such as that in nurses’ paper notes cannot be used or retrieved in an electronic database. So if nurses wanted to have their own information available and reusable for determining patient outcomes or staffing, for example, that nursing information needed to be captured using a standardized language that could be coded and used by nurses in any system. Thus the interest in nursing diagnoses, nursing interventions, and nursing outcomes has been increasing steadily.

With the emphasis today on evidence-based practice and monitoring patient outcomes, reliable nursing data is imperative. Nurses are being asked to prove they are effective. The best way to do that is to use standardized languages to document the patients’ responses to their illness and to their nursing care in such a way that outcomes can be demonstrated and even compared across settings.

Nursing diagnosis is the second step in the nursing process. It is the judgment made about the meaning of a cluster of signs and symptoms (defining characteristics) found in the nursing assessment of the patient. With-
out a nursing diagnosis, a nurse is left rudderless to determine what goals should be set for the patient, what outcomes are desired, or what interventions to choose to meet the goals and resolve the nursing diagnosis.

NANDA, International (2003) defines a nursing diagnosis as a “clinical judgment about individual, family, or community responses to actual or potential health conditions/problems/life processes. A nursing diagnosis provides the basis for selection of nursing interventions to achieve outcomes for which the nurse is accountable” (p. 263). There are three types of nursing diagnoses: actual, risk, and wellness.

An actual nursing diagnosis is a human response to health conditions/problems/life processes that exist in individuals, families, or communities. An actual nursing diagnosis is “supported by defining characteristics (manifestations, signs, symptoms) that cluster in patterns of related cues or inferences” (NANDA, 2003, p. 263). An example of an actual nursing diagnosis is ‘impaired skin integrity’ defined as “altered epidermis and/or dermis” with the defining characteristics of “invasion of body structures, destruction of skin layers (dermis), disruption of skin surface (epidermis)” and supported by related external and internal factors such as shearing forces, pressure, restraint, altered fluid status, skeletal prominence, altered sensations, etc. (NANDA, p. 166).

A risk nursing diagnosis describes a human response that may develop in vulnerable individuals, families, or communities. It is “supported by risk factors that contribute to increased vulnerability” (NANDA, 2003, p. 263). An example of a risk diagnosis is “risk for impaired skin integrity” defined as “at risk for skin being adversely altered” and supported by risk factors such as radiation, moisture, extremes of age, medications, alterations in nutritional state, etc. (NANDA, p. 167).

A wellness nursing diagnosis describes a human response that indicates a readiness for enhancement in levels of wellness in the individual, family, or community (NANDA, 2003). An example of a wellness diagnosis is “readiness for enhanced therapeutic regimen management” defined as “a pattern of regulating and integrating into daily living a program(s) for treatment of illness and its sequelae that is sufficient for meeting health-related goals and can be strengthened” and supported by defining characteristics such as “expresses desire to manage the treatment of illness and prevention of sequelae” and “choices of daily living are appropriate for meeting the goals of treatment or prevention,” etc. (NANDA, p. 190).

NANDA does not develop diagnoses. Its mission is to foster development and to provide mentorship and publish the new lists every 2 years. All diagnoses are developed by real working nurses and then submitted to NANDA. Revisions and deletions of diagnostic terms are handled in the same way. Submission guidelines are available online at http://www.nanda.org.

By the early 1980s there were a sufficient number of diagnoses to require some way to organize them. Taxonomy 1 was developed by a group of nursing theorists based on patterns of unitary human beings. It remained in place until it became clear that it was hindering instead of helping classify the new diagnoses. Work began on a new taxonomy in 1994 and Taxonomy II was adopted in 2000.

Kay C. Avant
Updated By Mary E. Kerr

Nursing Education

In 1873 three hospital training programs, modeled on Florence Nightingale’s work in the United Kingdom, were established in the United States. In 1907 a Department of Nursing and Health was initiated at Teachers College, Columbia University, to provide graduate-level leadership for the preparation of nurse tutors, faculty, and administrators (Dock, 1912). Not until 1923 did nursing education enter the university with the establishment of programs at Yale University and at Western Reserve University. These were the country’s first schools of nursing to have
an independent status among the schools and colleges of a university. These early developments led to nursing education both as a training program controlled by the hospitals and an academic program within the university setting.

As early as 1915 the National League of Nursing Education called for university-level education, a demand reinforced by the Committee for the Study of Nursing Education, in the Goldmark (1923) report and other important reports on nursing education (Brown, 1948). However, Mildred L. Montag’s (1959) writing on the potential role of nursing education at the community college level has had the greatest impact on nursing education today. From these early writings arose the distinction between the professional nurse, educated at the baccalaureate level or above, and the technical nurse educated at the community college level. In 1951 the first nursing program at a community college opened in Middletown, New York. Today community colleges prepare the largest number of nurses for practice.

From the turn of the century until the 1960s nursing leaders often obtained their graduate preparation in schools of education. Consequently, most major developments that took place in schools of education were rather quickly transferred to nursing curricula. The University of Chicago’s influence, through Ralph Tyler, had a major impact on nursing education, with focuses on learner objectives and curricular structure. However, in the 1980s there was a backlash against the objectives-based curriculum and a renewed focus on the nursing curriculum as a humanistic endeavor, where “caring” and not behavioral objectives formed the core of the content (Watson, 1988).

Licensure is required to practice nursing in each state, and until 1944 each state developed its own testing mechanism to license nurses. Today the National Council of State Boards of Nursing (NCSBN) has jurisdiction throughout the United States and its territories. The NCSBN sets standards for requirements and regulations for schools of nursing and licensure of new graduates. However, authority for requirements and regulations rests at the state level. All the states have agreed to use the same licensing examination to facilitate the mobility of the nursing workforce in the United States.

Currently there are three types of educational programs to prepare students for licensure as registered nurses (RN): baccalaureate degree (BSN), associate degree (ADN), and diploma programs. BSN programs, including accelerated options for second-degree seekers, are currently offered at 673 schools in the United States. On the graduate level, 400 master’s programs and 88 doctoral programs are available nationwide. In 2003, there were 126,981 nursing students enrolled in baccalaureate programs, 37,241 in master’s programs, and 3,299 in doctoral programs (AACN, 2004a). As of 2002, there were 700 ADN programs and only a small number of diploma programs operating in the U.S. (BLS, 2004).

In 2003, there were 10,167 full-time faculty in nursing programs offered in four-year colleges and universities. The faculty in these programs were 9.4% minority and 4.5% male (AACN, 2004b).

As of 2000, there were 2,694,540 RNs in the United States, and these nurses were 94.6% female, 86.6% white (non-Hispanic), and 81.7% were employed in nursing (HRSA, 2000). Their level of education is as follows: 22.3% diploma, 34.3% associate degree, 32.7% baccalaureate, 9.6% master’s degree, and 0.6% doctorate (U.S. DHHS, HRSA 2000).

Nursing has many professional organizations, yet it has successfully developed a unified position in dealing with federal issues that affect nursing education and patient care. The vehicle for cooperation is the Tri-Council, made up of representatives from three major nursing organizations: the American Nurses Association (ANA), the National League for Nursing (NLN), and the American Association of Colleges of Nursing (AACN). The AACN, headquartered in Washington, DC, is an organization composed of collegiate schools of nursing. It conducts annual surveys of faculty salaries, faculty workload,
and similar topics of primary interest to deans and directors of programs.

The ANA provides a voluntary credentialing mechanism that recognizes both RNs who are involved in advanced practice and those who are generalists practicing in a specialty area.

E. Smith (1979) defined continuing education as postregistered learning activity designed to increase knowledge or skill or to challenge attitudes. Several states now require varying amounts of additional education for relicensure. Moreover, some states (including Michigan, Idaho, Utah, and Minnesota) require competency-based continuing education.

Research on topics related to nursing education has been comprehensive and have examined many different areas, including quality of education, care planning, clinical judgment, clinical decision making, clinical teaching, learning styles, performance on licensure examination, faculty productivity, computer-assisted instruction, socialization processes, teaching learning processes, competencies, and others.

WILLIAM L. HOLZEMER
UPDATED BY JEANNE NOVOTNY

Nursing Informatics

Nursing informatics is a branch of informatics concerned with all aspects of the nursing profession’s use of computer technology. It can be viewed as the use of computer technology to support nursing (Hebda, Czar, & Mascara, 2001). Nursing informatics enhances and facilitates the legitimate access to and use of data, information, and knowledge. It is integrated in nursing practice, administration, education, and research programs and activities. It is incorporated in the design and development of computer-based patient records and other health-related systems (Saba & McCormick, 2001).

In 1992 the American Nurses Association (ANA) designated nursing informatics as a new nursing specialty. In 2001 the definition of nursing informatics evolved to incorporate the core elements considered to be key, namely: nurse, patient, health, environment, decision making, and nursing data, information, knowledge, information structures, and information technology. Nursing informatics is defined as a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, and knowledge to support patients, nurses, and other providers in their decision-making in all roles and settings. This support is accomplished through the use of information structures, information processes, and information technology (ANA, 2001, p. 17).

Informatics is derived from the French word informatique, which refers to all aspects of the computer milieu. Informatics emerged in the 1960s with the introduction of computers in the health care industry. As the industry advanced and expanded, computer applications and information systems emerged for health care facilities, specialties, and professions. During the past 3 decades, several nursing initiatives also have advanced the progress of nursing informatics for the profession. This period included several ANA recommendations designed not only to advance the development of nursing practice but also nursing data standards for computer-based systems.

As early as 1970 the ANA recommended that the nursing process be used as the standard for documenting clinical nursing practice. In 1988 the ANA recognized the Nursing Minimum Data Set (NMDS) as those 16 minimum data elements designed to document nursing care of patients and their families in any delivery setting. Four nursing care data elements in the NMDS—nursing diagnoses, nursing interventions, nursing outcomes, and intensity of nursing care—were envisioned as essential to be incorporated into computer systems with the idea of comparing nursing data across health care facilities, clinical population groups, and geographic areas (Wolley & Lang, 1988).
Since 1992 the ANA, through the Committee on Nursing Practice and Information Infrastructure (CNPII), has recognized several vocabulary classification schemes or terminologies as meeting nursing data standards and clinical practice standards. These include the NANDA Taxonomy, the Home Health Care Classification (HHCC) System, the Omaha System, the Nursing Intervention Classification (NIC), the Nursing Outcomes Classification (NOC), the Nursing Minimum Data Set (NMDS), the Nursing Management Minimum Data Set (NMMDS), the International Classification for Nursing Practice (ICNP), the Patient Care Data Set (PCDS), the Perioperative Nursing Data Set (PNDS), SNOMED-CT, and Clinical LOINC. Each of these schemes addresses one or more of the data elements in the NMDS, and they are professionally recognized as the data standards essential for computer-based nursing information systems. Many of these terminologies are included in the National Library of Medicine’s (NLM) Unified Medical Language System (McCormick et al., 1994; Saba & McCormick, 2001).

Another national nursing initiative, an expert panel in Nursing Informatics, was convened in 1988 by the National Institute for Nursing Research (NINR), National Institutes of Health (NIH), Public Health Service (PHS), and Department of Health and Human Services (DHHS) to investigate the scope of nursing informatics. The panel indicated that research was needed to determine the data and information needed by nurses for the computer-based patient record systems that affect nursing practice. They also recommended that efforts be focused on designing decision support systems, evaluating nursing information systems, and developing other applications to improve patient care.

Since 1999, annual Nursing Terminology Summit Conferences have been held with representation from national and international nursing informatics experts. The work from these conferences, combined with the efforts of the International Council of Nurses, the Nursing Informatics Special Interest Group of the International Medical Informatics Association, and others, has resulted in the first proposed nursing international standard.

The nursing informatics specialist, a nurse with formal education and practical experience using computers to support the information needs of all facets of nursing practice (Hebda, Czar, & Mascara, 2001), has the goal of improving the health of individuals, families, communities, and populations by optimizing information and communication (ANA, 2003). This is accomplished by incorporating theories, principles, and concepts from appropriate sciences into the use of technology in direct patient care, in the establishment of effective administration systems, in managing and delivering educational experiences, and in supporting nursing research (ANA). Nursing informatics focuses on the information management and processing of nursing data. It provides the framework for nursing data, information, and knowledge processed by the computer. Nursing informatics concepts require nursing classification schemes and vocabularies to provide the structure and framework for the data. Applications of nursing informatics are needed to standardize nursing documentation, to improve communication, to support the decision-making process, and to develop and disseminate new knowledge. They also are needed to enhance the quality, effectiveness, and efficiency of health care; empower clients to make health care choices; and advance the science of nursing (ANA).

Basic to the understanding of nursing informatics is an understanding of nursing data, data standards, and practice standards. Nursing data form the basis and foundation of nursing informatics. They are essential for the documentation of nursing care and management of clinical nursing practice. Nursing data refers to the atomic-level data elements or the unstructured raw facts. These data, once processed with other data elements, are transformed by the computer into information, and information, once aggregated and synthesized, creates new knowledge. Nursing knowledge forms the basis of knowledge-based systems, expert systems, and decision
support systems that advance the science of nursing (Saba & McCormick, 2001).

Nursing informatics is critical to the conduct of research of nursing practice problems. Computer hardware and software are being used to design research tools, collect and process research data, and analyze and retrieve research information. The nursing vocabularies and data standards are being used to research the critical data elements for the computer-based patient record (CPR) systems, including the lifelong longitudinal health care record. The data elements also are being used for nursing information systems designed to document patient care, measure outcomes, and determine quality indicators. Nursing informatics is becoming an integral component in nursing administration, practice, education, and research as well as the nursing profession and health care industry.

**Virginia K. Saba**

**Updated by Ida Androwich**

### Nursing Information Systems

Saba and McCormick (2001) described nursing information systems as the use of technology and/or computer systems to collect, store, process, display, retrieve, and communicate timely data and information in and across health care facilities that:

- administer nursing services and resources,
- manage the delivery of patient and nursing care,
- link research resources and findings to nursing practice, and
- apply educational resources to nursing education.

Nursing information systems are used to support nursing education, nursing practice, and nursing research. A nursing information system (NIS) is an information system that supports the use and documentation of nursing processes and provides tools for managing the delivery of nursing care (Hebda, Czar, & Mascara, 2001).

Early information systems focused on financial transactions models and were designed primarily to support charge capture, administrative, and operational transactions. With the increased introduction of computer technology in the health care industry, computer developers of the early hospital, medical, and patient care information systems began to expand their systems to include subsystems that addressed the documentation of nursing care. Then, as now, the challenge remains as to how to best computerize the existing paper-based methods of documenting nursing in health care facilities to support nursing and patient care. Developers began by computerizing the standardized nursing care protocols or plans that focused on medical diagnoses, surgical procedures, or disease conditions. With the introduction of the microcomputer, NISs emerged as stand-alone systems for a specific nursing application for different aspects of nursing administration, practice, education, research, and community health. Such systems were designed by nurses who were becoming proficient in their design.

In 1996, the American Nurses Association (ANA) established the Nursing Information and Data Set Evaluation Center (NIDSEC) to develop and disseminate standards pertaining to information systems that support nursing practice, and to evaluate voluntarily submitted information systems against those standards.

A number of models for viewing information systems have been proposed. One model, developed by Graves and Corcoran, focuses on the design of an NIS as the framework that represents the management processing of data, information, and knowledge. Ziedorff, Hudgings, and Grobe (1993) identified design criteria for systems supporting the nursing process that included system capabilities, such as performance, flexibility, and connectivity, as well as user-machine interface, hardware, and data security and integrity requirements. They also believed it essential that the system would promote efficiency and effectiveness of care by supporting decision-making by the nurse. Androwich et al. (2003) emphasize that the information systems of the future must go beyond meeting...
basic information needs to support practice. They envision data, information, and knowledge available to the nurse as needed to inform every present clinical encounter and to provide and generate new knowledge to improve future encounters. NIDSEC identified four dimensions of nursing data sets and the systems that contain them: nomenclature (the terms used), clinical content (the “linkages” among terms), clinical data repository (how the data are stored and made available), and general systems characteristics.

Nursing information systems can be found in all areas where nurses function and in all settings where nurses provide patient care: hospitals, community health agencies, managed care organizations, ambulatory care facilities, and other settings where services are provided.

NIS in nursing administration are used primarily for the administration of nursing services and the management of nursing units. For the administration of nursing services, these information systems are designed to generate information focusing on budget, personnel, and resource management. The focus is on the specific applications needed to run a nursing department effectively and efficiently, such as staffing, scheduling, utilization, productivity, quality assurance, and discharge planning. Systems designed for the management of nursing units focus on the patient care services and address nursing intensity, patient classification, acuity, decision support, and patient outcomes. These systems are used to track the care process during an episode of illness as well as measure the impact and outcomes of the care.

In the area of nursing practice, NIS are used to document care planning and patient care services and comprise the computer-based patient record (CPR). The major applications are order entry, results reporting, medication protocols, care planning protocols, patient education, quality assurance, and discharge planning systems. The system utilizes the point-of-care computer terminals to capture direct patient care and can support the care process with decision support systems. Well-designed systems focus on the integration of information and care by all providers and can be used for discharge planning and referral to community health agencies and home health care services for follow-up.

In the area of nursing education, NIS form the technology that support the education process, such as computer-assisted instruction (CAI), interactive video (IVD) programs, and web-based courseware for synchronous or asynchronous learning. They use a wide range of educational strategies that enhance and integrate nursing informatics into the educational process (Saba & McCormick, 2001).

In nursing research, NIS support the research process. Without such systems, nursing research cannot be accomplished on large-scale databases and population groups. NIS are needed to process and analyze research data that only a computer application can perform. Nursing research applications include searching the literature by using bibliographic retrieval systems containing nursing-related material. Other applications include classification systems needed to code, classify, process, and analyze nursing research data, as well as the instruments and tools used to conduct research: database management systems, file managers, spreadsheets, and statistical software designed to process research data. Other applications, such as graphic displays, text preparation, and editors, are designed to disseminate and communicate research findings and conclusions via online databases or the Internet.

Nursing information systems represent the nursing informatics applications. They are described by the focus of the specific application, which varies according to the focus of the nursing activities supported. NIS are used in all major areas of nursing, namely, nursing administration, practice, education, research, and community health.

**Nursing Intensity**

The concept of nursing intensity relates to the amount of nursing care provided to one
or more patients. While there is not yet a universally accepted definition or measure of nursing intensity, all sources agree that it is partly a function of average hours of care provided to patients in a particular setting in a specific time frame. In the research literature, nursing intensity has often been operationally defined as patient acuity.

The first controlled clinical trial that varied nursing intensity levels in a patient care unit was done by New, Nite, and Callahan in 1959. In an attempt to determine optimal staffing, they varied nursing hours per patient day from the usual 4.5 to as high as 7.9 hours of care per day. They discovered that chronic overstaffing had deleterious effects on morale. New, Nite, and Callahan did not measure or address patient acuity as part of their study.

Patient acuity was first measured as a predictor of nursing care needs by Robert Connor in 1960. Connor’s research demonstrated that need for nursing hours was not predictable from census alone, but by a combination of census and illness level of the patients. Connor developed the first patient acuity measure and concurrently developed a plan for allocating nursing resources by patient requirements. A serious problem with matching nursing intensity to patient care needs is the reality that patient care needs are not constant. Connor found that providing a fixed number of nurses in a particular patient care unit guaranteed that there would be frequent incongruity between nursing resources and care requirements. Connor found and other researchers confirmed that patient care workload varied randomly from day to day and concluded that nursing resources must be able to be varied since care requirements varied (Connor, R., 1960).

Patient acuity is readily measured through use of a set of patient care requirements. There are algorithms that allow patient care needs to be translated into required hours of nursing care. There are two major problems with using patient acuity as a measure of nursing intensity. First, there is no guarantee that the number of nursing hours called for by the patient acuity system will be the same as the number of nurses available to provide care. Second, the approach assumes no differences between nurses with different education or different experience. In a report submitted to the American Nurses Association’s Database Steering Committee, M. McHugh (1994) recommended that a measure of nursing intensity have at least the following six critical attributes: A time frame in which the care is delivered, hours of nursing care provided in that time frame, educational level of the nurses providing the care, years of experience of the nurses, years of experience in the particular clinical specialty, and years of experience in the particular setting in which the care is delivered. Recent studies have greatly increased the interest in the effects of educational levels of the nurses due to findings that this variable may have significant effects on patient outcomes.

More recently, a variety of studies examined the relationship between Magnet Hospital Status and patient outcomes. A key characteristic of Magnet Hospitals is professional nursing, and studies of nursing in Magnet Hospitals set the stage for later studies of nursing intensity and patient outcomes. Aiken, Smith, and Lake (1994) reported a lower mortality rate in Magnet Hospitals and related that to nursing autonomy and adequate staffing. In a review of research related to Magnet Hospitals (Scott, Sochalski, & Aiken, 1999), nursing intensity was not specifically addressed, but their discussion of primary nursing, nursing control of practice, and nursing autonomy as characteristics of Magnet Hospitals clearly relates to professional nurses rather than to Licensed Practical Nurses or unlicensed assistive personnel. There are several major issues that require study in nursing intensity. First is the total number of care hours provided relative to patient care needs. That was the focus of the studies from the 1960s through the early 1990s. However, beginning with Aiken, Smith, and Lake’s study in 1994, the focus shifted from simply matching nursing resources to measured patient care requirements to studying patient care outcomes related to nursing care.
The first research concerns the relation of RN skill mix to patient outcomes. The second concerns the relation of educational level of the RNs to patient outcomes. Blegen, Goode, and Reed (1998) studied RN skill mix and patient outcomes. In that study and others, a higher RN skill mix means that of the staff, more are RNs than LPNs or unlicensed assistive personnel. This study found that a higher skill mix was associated with a lower rate of adverse patient occurrences such as falls, medication errors, and decubitus ulcer formation. Other studies confirmed the relationship between RN care and positive quality and patient outcomes. In a secondary analysis of a survey of over 11,547 Pennsylvania nurses, Sochalski (2001) found that intensity of nursing care (defined as workload) was significantly associated with quality of care. Aiken, Clarke, Sloan, Sochalski, and Silber (2002) reported that in hospitals with high patient-to-nurse ratios (lower nursing intensity), surgical patients experienced higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses were more likely to experience burnout and job dissatisfaction.

Lichtig, Knauf, and Milholland (1999) conducted a study of hospitals in California and New York. Their most consistent finding was that more nursing hours and a higher skill mix of nurses were both associated with reduced hospital length of stay. They also found that a higher nursing skill mix was associated with a lower rate of decubitus ulcers—each additional percentage point of personnel who were RNs was associated with a reduction in pressure ulcers of between .79% and 1.77%. In the California hospitals, a higher percentage of RNs was also associated with lower rates of pneumonia and lower postoperative infection rates.

Given the repeated findings of lower lengths of stay, lower complication rates, and lower mortality rates associated with a higher RN skill mix, there can no longer be any question that a nursing staff that includes a high percentage of RNs produces more positive patient outcomes and lower lengths of hospital stay. To date, only two studies were found that examined the relationship of educational level of nurses to patient care outcomes.

Blegen, Vaughn, and Goode (2001) found that experience of professional nurses, but not education, was associated with lower rates of falls and medication errors. In fact, in units with a higher percentage of BSNs there was a slightly higher medication error rate. However, in a landmark study in 2003, Aiken, Clarke, Cheung, Sloane, and Silber found that even after adjusting for a wide variety of patient and hospital characteristics, a 10% increase in the proportion of nurses holding a bachelor’s degree was associated with a 5% decrease in both the likelihood of patients dying within 30 days of admission and the odds of failure to rescue. Aiken did not study medication error rates as did Blegen, Vaughn, and Good. Therefore, the difference in the results may be related to the different dependent variables, to different patient populations (all Aiken and colleagues’ subjects were in Pennsylvania hospitals while Blegen and colleagues studied hospitalized patients in the Midwest). Also the two researchers used very different methodologies.

In summary, much has been learned about the positive outcomes of having sufficient staff to provide patient care. Research has demonstrated that a higher percentage of RNs is associated with more positive patient outcomes. However, the research on the effects of nursing experience and of BSN versus non-BSN prepared nurses is limited and the results are not yet sufficiently confirmed so as to draw definitive conclusions. Ultimately, an index of nursing intensity that includes nursing time, nurses’ experience and nurses’ educational level would greatly facilitate further studies of the effects of management decisions about nurse staffing on patient care outcomes.

MARY L. McHUGH

Nursing Interventions Classification (NIC)

The Nursing Interventions Classification (NIC) is a comprehensive standardized classi-
The portions of the intervention that are standardized are the intervention labels and the definitions—these should not be changed when they are used. This allows for communication across settings and comparison of outcomes. Care can be individualized, however, through the activities. From a list of approximately 10 to 30 activities per intervention, the provider selects the activities that are appropriate for the specific individual or family and then can add new activities if desired. All modifications or additions in activities should be congruent with the definition of the intervention. For each intervention, the activities are listed in logical order, from what a nurse would do first to what s/he would do last. The short lists of background readings at the end of each intervention are those found most helpful in developing the intervention or supporting some of the activities in the intervention. They are a “beginning” place to start reading if one is new to the intervention, but they are by no means a complete reference list, nor are they inclusive of all the research on the intervention.

The interventions are grouped into 30 classes and seven domains for ease of use. The seven domains are: Physiological: Basic, Physiological: Complex, Behavioral, Safety, Family, Health System, and Community. A few interventions are located in more than one class, but each intervention has a unique number (code) that identifies the primary class and is not used for any other intervention. In the fourth edition the interventions are also grouped into a second organizing structure, the Taxonomy of Nursing Practice, developed by a collaborative group working toward a common structure for NANDA diagnoses, NIC interventions and NOC outcomes (Dochterman & Jones, 2003).

NIC interventions have been linked with North American Nursing Diagnosis Association (NANDA) nursing diagnoses, Omaha System problems, Nursing Outcomes Classification (NOC) outcomes, resident assessment protocols (RAP) used in nursing homes, and OASIS (Outcome and Assessment Information Set) used for collection for Medicare/Medicaid-covered patients receiving skilled
home care. The research to develop NIC began in 1987 and has progressed through four phases, each with some overlap in time:

- **Phase II: Construction of the Taxonomy (1990–1995)**
- **Phase IV: Use and Maintenance (1996–ongoing)**

The research was begun with 7 years of funding from the National Institutes of Health, National Institute of Nursing. Multiple research methods have been used in the development of NIC. An inductive approach was used in phase I to build the classification based on existing practice. Original sources were current textbooks, care planning guides, and nursing information systems. Content analysis, focus group review, and questionnaires to experts in specialty areas of practice were used to augment the clinical practice expertise of team members. Phase II was characterized by deductive methods. Methods to construct the taxonomy included similarity analysis, hierarchical clustering, and multidimensional scaling. Through clinical field-testing, steps for implementation were developed and tested and the need for linkages between NANDA, NIC, and NOC were identified. Over time, more than 1,000 nurses have completed questionnaires and approximately 50 professional associations have provided input about the classification.

Several tools are available that assist in the implementation of the Classification. Included are the taxonomic structure to assist a user to find the intervention of choice, linkages with NANDA diagnoses to facilitate decision support with these diagnostic languages, the core intervention lists for areas of specialty practice, as well as the amount of time and level of education need to perform each intervention.

NIC is recognized by the American Nurses Association (ANA) and is included as one data set that will meet the uniform guidelines for information system vendors in the ANA’s Nursing Information and Data Set Evaluation Center (NIDSEC). NIC is included in the National Library of Medicine’s *Metathesaurus for a Unified Medical Language*. The *Cumulative Index to Nursing Literature (CINAHL)* includes NIC interventions in its indexes. NIC is included in the Joint Commission on Accreditation for Health Care Organization’s (JCAHO) accreditation requirements as one nursing classification system that can be used to meet the standard on uniform data. Alternative Link Systems (2001) has included NIC in its ABC codes for reimbursement for alternative providers. NIC is registered in HL 7 (Health Level 7), the U.S. standards organization for health care. NIC is also licensed for inclusion in SNOMED (Systematized Nomenclature of Medicine). Interest in NIC has been demonstrated in several other countries, and translations into Chinese, Dutch, French, Icelandic, German, Japanese, Korean, Spanish, and Portuguese are completed or underway.

Many health care agencies have adopted NIC for use in standards, care plans, competency evaluation, and nursing information systems; nursing education programs are using NIC to structure curriculum and identify competencies for nursing students; vendors of information systems are incorporating NIC in their software; authors of major texts are using NIC to discuss nursing treatments; and researchers are using NIC to study the effectiveness of nursing care.

**Joanne McCloskey Dochtermann**

### Nursing Occupational Injury and Stress

According to the Bureau of Labor Statistics (BLS, 2000), there were approximately 11 million workers employed in the health services sector in 1999 representing nearly 9% of employed U.S. workers. Health care workers face numerous work-related hazardous exposures that can result in injury and illness. Health care workers can include nurses, phy-
Physicians, physical therapists, aides, physician assistants, laboratory workers, and the like.

As reported by BLS (2000), an estimated 606,000 cases of health services worker injury or illness occurred in 1998, with an incidence rate of 7.7 injuries or illnesses per 100 full-time workers. The rate compared with an overall rate of 5.2 injuries or illnesses per 100 full-time workers in all service industries (including health care) and a rate for private industry in general of 6.7 per 100 full-time workers. Of the 606,000 cases, 279,700 involved days away from work and days of restricted work activity. This rate of 3.6 cases per 100 full-time workers exceeded that for all service industries at 2.4 cases per 100 full-time workers and for private industry at 3.1 cases per 100 full-time workers.

Occupational health hazards include:

1. Biologic and infectious hazards: infectious and biologic agents, such as bacteria, viruses, fungi, or parasites, that may be transmitted through contact with infected individuals or with contaminated body secretions or fluids.
2. Chemical hazards: various forms of chemicals that are potentially toxic or irritating to the body system, including medications, solutions, and gases.
3. Enviro/mechanical hazards: factors encountered in the work environment that cause or potentiate accidents, injuries, strain, or discomfort (e.g., poor equipment of lifting devices, slippery floors).
4. Physical hazards: agents within the work environment, such as radiation, electricity, extreme temperatures, and noise, that can cause tissue damage.
5. Psychosocial hazards: factors and situations encountered or associated with one’s job or work environment that create or potentiate stress, emotional strain, or interpersonal problems.

Exposure to biologic agents and subsequent diseases that can develop are the most familiar risk faced by health care workers (Rogers, 1997). While there are many biological agents of importance, most notably HIV and hepatitis B and C are of most concern. Each year an estimated 600,000 to 800,000 needlestick or sharps injuries occur among health care workers (Twitchell, 2003a, 2003b). As of 1999, the Centers for Disease Control and Prevention (CDC) (2000a) has documented 56 cases of occupationally acquired HIV infection or AIDS among health care workers and, of these, exposures included 49 percutaneous, 5 mucotaneous, 2 with both percutaneous and mucotaneous, and 1 had an unknown exposure route. The CDC is also aware of a possible 138 additional occupationally acquired HIV infections or AIDS.

In 1989, the CDC estimated that approximately 12,000 health care workers were annually occupationally infected with hepatitis B virus (HBV) and that approximately 250 would die. As a result of the Occupational Safety and Health Administration’s Bloodborne Pathogen Standard in 1991, the standard compelled employers to offer cost-free HBV vaccine to at-risk employees. This has resulted in a steady decline in the number of infections of HBV to an estimated 400 cases annually in 1995 (Mahoney et al., 1997). This change is attributed to immunization and use of standard precautions.

Hepatitis C virus (HCV) infection is the most common blood-borne infection, with nearly 4 million persons estimated to have chronic infection worldwide. In the U.S. an estimated 3.9 million people are infected with HCV, resulting in 8,000 to 10,000 deaths annually from acute and chronic liver disease (CDC, 1998). Among health care workers the prevalence of HCV infections is about 1%–3% (Alter et al., 1998).

Chemical agent exposures in the health care work environment can be irritating and toxic to tissues, mostly through inhalation or skin contact exposures. The most common exposures include disinfectants, sterilizing agents, inhaled anesthetics, aerosolized pharmaceuticals, chemotherapeutic agents, and latex. Disinfectants can result in airway symptoms and skin problems, while ethylene...
oxide, used to sterilize equipment, has mutagenic and carcinogenic properties, as demonstrated in animal studies (Rogers, 1997).

Glutaraldehyde is an extremely effective microbiocide used for cold sterilization of endoscopes and bronchoscopes. While technical personnel bear the brunt of the exposure, nurses and physicians also have significant contact if fumes are not vented or scopes are not adequately rinsed. Skin, eye, and respiratory tract irritation is the result along with the possibility to develop allergic dermatitis and asthma.

The principal hazardous drugs of concern for occupational exposure are the antineoplastic agents. Pharmacists and nurses who handle and administer the agents are at significant exposure risk. As a result health care workers exposed to antineoplastic agents have been found to have a significantly greater risk of urine mutagenicity and adverse symptoms common to specific agents including lightheadedness, nasal sores, nausea, hair loss, depressed leukocytes, skin rash, and higher fetal loss (Rogers & Emmett, 1987; Valanis, Vollmer, & Steele, 1999). Those most at risk for toxicologic effects will have regular cumulative exposure in practice settings such as hospital oncology floors, oncology units, private physicians’ offices, and outpatient clinics.

Latex allergy is a growing problem for health care workers with some reports of more than 17% prevalence (NIOSH, 1997). Latex is ubiquitous in home and health care environments to which nurses are exposed. The allergen is usually a protein which binds to the glove powder as part of the manufacturing process (Kurup et al., 1996; Posch et al., 1997). Inhalation occurs when the powder is expelled into the air during glove donning or removal. Reactions can range from contact dermatitis, systemic reactions, and/or anaphylaxis.

Enviromechanical agents relate to exposures resulting from poorly designed or inadequate equipment or devices, work stations, or situations that can result in worker injury. There is a high prevalence of low-back pain and injury among nursing personnel (Nelson, Fragala, & Menzel, 2003), and back injuries are cited as the most costly worker’s compensation problem today. While back injuries are highly prevalent in the health care industry, the actual incidence is thought to be underestimated. Several studies implicate lifting techniques, poor staffing, lack of ergonomic design, and constitutional factors as contributory (Nelson et al., 2003). In addition to the aforementioned factors the authors cited lack of accessibility, physical stress, lack of skill and training, and increased patient transfer activities, lack of use of assistive devices, and solo lifting as etiologic factors. Nurses’ aides are at higher risk for back injuries than construction workers and laborers (NIOSH, 2001). The impact of these injuries is enormous in terms of worker pain and safety, disability, lost work time, absenteeism, medical care costs, personnel replacement costs, and decreased productivity. Better use of equipment, training, and improved work conditions and staffing could help prevent this disabling problem.

Physical agents are probably the least important hazard in health care environments; however, exposures do occur. Radiation is a common hazard used in medical therapeutics, and exposure can occur during diagnostic x-rays, radioactive implants, and from patient body fluids with metabolized therapeutic nuclear radiation. Obviously developmental anomalies can occur from exposure during pregnancy (Wagner, Lester, & Saldano, 1997). Lasers emit non-ionizing radiation and can cause eye or skin injury from a point of impact. “Laser” is an acronym for “light amplification by stimulated emission of radiation.” Exposures to lasers can result in skin thermal burns and corneal damage as a result of poor use of protective wear. In addition, air contaminants may be generated when a specific laser beam (class 3b or 4) interacts with matter (NIOSH, 1999), which may produce toxic and noxious vapors, the presence of dead and live cellular materials and viruses, and metal or plastic fumes to which health care workers are exposed.

Psychosocial agents or stressors and their effects are often reported in nursing literature...
While many areas in nursing have been studied and are highly stressful, intensive care nursing, hospice, emergency nursing, and oncology nursing have been studied the most. Factors cited most frequently as contributory to workplace stress in nursing include death and dying, inadequate staffing and resources, interpersonal conflicts, dealing with family needs, work overload, organizational politics, and poor communications. Issues related to quality concerns have created job stress, resulting in increased depressive symptomology, increased role conflict, and decreased job satisfaction (NIOSH, 2002).

Burnout continues to be a serious problem and has been found to be associated with shift work, lack of autonomy, floating, and lack of administrative support. Many of the same factors that contribute to stress also lead to burnout, resulting in decreased job satisfaction, increased absenteeism, and turnover.

Health care workers are at continual and increased risk for injury and death from workplace violence (Drury, 1997; Boyd, 1998; NIOSH, 2001). This includes both threatening behavior and physical assaults. Homicide is the second leading cause of occupational fatality in the U.S. and victims of workplace violence account for 15% or almost 1 million violent acts experienced. Health care institutions mirror society and increasingly nurses are called to manage potentially harmful situations at work (Drury).

The Emergency Nurses Association (ENA) identified that the most important workplace factors determining violence in the emergency room were the presence or absence of security personnel, presence or absence of safety equipment, work norms, policies, staffing patterns, staff training, and physical design of the work area. They also concluded that the nurse’s size, gender, and work experience mattered. Though some studies have identified gender as a factor that increases vulnerability to assault, most experts agree that male and female health care workers are equally vulnerable to assault (ENA, 1994).

In summary, work-related hazards are ubiquitous and becoming more problematic in the health care environment. Recognition of the events and those at potential risk is critical as is developing strategies to prevent and control the exposure and the risk.

**BONNIE ROGERS**

### Nursing Outcomes Classification

The Nursing Outcomes Classification (NOC) is a comprehensive, research-based standardized classification of patient/client, family, and community outcomes developed to evaluate the effects of nursing interventions across the continuum of care. An outcome is stated as a variable concept representing an individual, family, or community condition that is measurable along a continuum and responsive to nursing interventions. The definition of a nursing-sensitive patient outcome is

> an individual, family or community state, behavior, or perception that is measured along a continuum in response to a nursing intervention(s). Each outcome has an associated group of indicators that are used to determine patient status in relation to the outcome. (Moorhead, Johnson, & Maas, 2004, p. 26)

Each outcome has a label name, definition, set of specific indicators, and a 5-point scale to measure the concept and indicators. The outcomes are developed for use in all specialties and with all patient populations and have been used in interdisciplinary care plans and care maps. Since the outcomes describe patient/client status, other disciplines may find them useful for the evaluation of their interventions. An important characteristic of the classification is that NOC outcomes can be used across the care continuum to follow patient outcomes throughout an illness episode or over an extended period of care.

The first edition of NOC was published in 1997 with 196 outcomes (Johnson, M., &
Maas, 1997) and is the first classification focused on outcomes of nursing care. The second edition, published in 2000, contained 260 outcomes (Johnson, M., Maas, & Moorhead, 2000) and the third edition contained 330 outcomes (Moorhead, Johnson, & Maas, 2004). The classification is on a 4-year publication cycle. In the third edition, 76 outcomes have a new 2-scale format. This format uses two scales to measure the indicators of the outcome. The second scale is used to measure symptoms that previously were difficult to state using the primary scale. For example the outcome “Endurance” defined as the “capacity to sustain activity” uses the severely compromised scale to rate the majority of the indicators such as “performance of usual routine,” “activity,” and “concentration.” This scale has the following anchors: severely compromised, substantially compromised, moderately compromised, mildly compromised, and not compromised. The second scale measures severity of symptoms using endpoints of severe, substantial, moderate, mild, and none. Three symptoms are measured using this scale: exhaustion, lethargy, and fatigue. The overall outcome is measured on the compromised scale.

New to the third edition is the ability to set a target outcome rating that allows the nurse to determine if the goal of nursing intervention is to maintain the outcome at a desired rating or to increase the rating to a higher score. In some circumstances the main goal of nursing intervention is to prevent decline in the outcome. An example of this situation is often seen when elderly patients are admitted to a nursing home. The nursing staff focuses on preventing deterioration in outcomes such as mobility and endurance.

The classification was developed using inductive and deductive methods as well as quantitative and qualitative approaches. Nursing outcome statements were extracted from nursing textbooks, clinical information systems, and research studies as a first step in building the classification. Most of these statements were goal statements that were evaluated as “met” or “unmet.” A series of sorting exercises was used where team members clustered like concepts into grouping for further refinement by eight focus groups. Each focus group then developed each outcome with its definition and indicators from this sorting process for review by the research team. The focus group chairs were doctorally prepared investigators on the research team, and focus group members included research team members and practicing clinicians. Focus groups used a modified concept analysis to establish face validity as outcomes were developed for the classification. Each outcome was reviewed by the entire team, suggestions for revision were offered by members, and the final draft was approved by the research team prior to placement in the taxonomy.

The outcomes in the classification are grouped into seven domains: Functional Health, Physiologic Health, Psychosocial Health, Health Knowledge and Behavior, Perceived Health, Family Health, and Community Health. Within each domain are several classes that contain the outcomes specific to that class. For example the domain Functional Health has the classes Energy Maintenance, Growth and Development, Mobility, and Self-Care. Examples of outcomes under Energy Maintenance are Activity Tolerance, Endurance, Energy Conservation, and Sleep. The classification has 29 classes under these seven domains to assist nurses in finding the outcomes that they use in practice. Each domain and class is defined to facilitate the placement of outcomes in the taxonomy as they are developed. The entire taxonomy (outcomes, indicators, and measurement scales) is coded for implementation in computerized clinical information systems and for the manipulation of data to answer questions about nursing care quality and effectiveness.

The original taxonomy was developed using hierarchical cluster analysis, a technique used previously by the Nursing Interventions Classification research team in the development of their initial taxonomy (Moorhead, Head, Johnson, & Maas, 1998). Building on their procedures, three groups of nurse experts sorted the developed outcomes into categories. Following these sorts by individual
team members, the outcomes were grouped into 5, 10, 15, and 25 tentative categories using hierarchical clustering techniques. Using the 25-category structure, the original taxonomy had 24 classes identified and names and definitions were created for each class. The domain level of the taxonomy was created in the same way using the classes, and the original structure had six domains. Community Health was added as community-level outcomes were developed.

Initial phases of the research tested content validity of the outcomes by using survey research methods and master's prepared nurse experts. Questionnaires were developed by team members that asked respondents to rate the importance of each indicator for determining the outcome on a 5-point scale, from “never important” to “always important.” In addition the research team was interested in the sensitivity of the outcomes to nursing interventions. Each respondent was asked to rate each indicator on a five-point scale, from “no contribution” to “contribution is mainly nursing.” Fehring’s methodology (1987), using ratios identified by Sparks and Lien-Gieschen (1994), was the basis of evaluation of the importance and sensitivity of the indicators and outcomes. These surveys reinforced the importance of the indicators. There was more variation in the nursing contributions of the outcomes surveys and this was especially true for physiological indicators. During the work with these surveys, there was a major shift in practice to a more interdisciplinary model. On some outcomes respondents suggested additional indicators which the team reviewed and added as appropriate. Following the survey work, the outcomes were piloted in a tertiary care setting, a community hospital, and a nursing home with favorable results.

The research team realized that a more thorough study of the outcomes use in practice was needed and determined that a grant focused on measurement was the next step needed in the refinement of the classification. A 10-site study was funded by the National Institute of Nursing Research to test the reliability and sensitivity of NOC outcomes as well as their feasibility in practice settings. This study focused on testing the classification across the continuum of care in the United States. Clinical sites participating in the study include two academic teaching hospitals, three community hospitals, one nursing home, one parish nursing organization, two visiting nurse associations, and one nurse practitioner clinic.

This study focused on testing the 190 outcomes from the first edition of the classification. Data were collected on over 2,300 patients with a total of over 12,500 outcome ratings. Methods used were inter-rater reliability, construct validity using criterion tools, and an evaluation of the sensitivity of the outcome measures to capture change in outcome ratings over time. The measurement scales used in the NOC have been shown to be sensitive to nursing interventions with patients in a variety of care settings and have been able to capture change in patient status even during short admissions in acute care. This research produced important data for the revisions made to the classification for the third edition. Many nurses have contributed to this important work in outcome language development for nursing.

Refinement of the outcomes and outcome development are still a large part of the work of the research team. New outcomes are being developed to meet the needs of practicing nurses, and beginning work on the identification of core outcomes by specialty organizations was published in the third edition. More work in the identification of core outcomes is needed as nurses shift their practice from goals to outcomes. Linkage work with the North American Nursing Diagnosis Association (NANDA) International diagnoses is included in the book, and an additional book identifying linkages among diagnoses, interventions, and outcomes was published in 2001 (Johnson, M., Bulechek, Dochterman, Maas, & Moorhead, 2001). More recently the need for a common taxonomic structure for NANDA, NIC, and NOC led to an invitational conference that developed an initial common structure known as Taxonomy of Nursing Practice, published in 2003 by the
American Nurses Association (Dochterman & Jones, 2003). The importance of effectiveness research using standardized languages is becoming a reality, as hospitals and other agencies where nurse work begin to gather the needed data to evaluate in more detail the effectiveness of nursing interventions on the problems nurses face with patients, families, and communities. Accurate measurement of outcomes using NOC is an important piece of effectiveness studies.

The NOC is endorsed by the American Nurses Association as a classification for use by nurses to capture the outcomes of care. This recognition occurred in 1998 as did the inclusion of NOC in the National Library of Medicine’s Metathesaurus. In 2001 NOC was registered in Health Level 7. NOC was also licensed for inclusion in the Systematized Nomenclature of Medicine (SNOMED) in 2002 and content was added in 2003. NOC has been translated into Dutch, French, German, Japanese, Korean, and Spanish. A Portuguese translation of the second edition of NOC is forthcoming. Endorsement of NOC by the international community has been important to its development.

NOC is an important classification for the implementation of the Nursing Minimum Data Set (Werley & Lang, 1988). It has been used with other standardized languages such as the NANDA International Nursing Diagnoses (NANDA, 2003), Nursing Interventions Classification (Dochterman & Bulechek, 2004), and the Omaha System (Martin, 1982), and it has been linked to the Long-Term Care Minimum Data Set Resident Assessment Instruments (RAI), the Resident Assessment Protocols (RAPs), and the Outcome and Assessment Information Set (OASIS).

Standardized languages for nursing practice are essential to capture the nursing problems, interventions, and outcomes of nursing care. They are also essential for today’s health care system focused on quality outcomes in a cost-conscious environment. We need data about outcomes of care to influence policy and policy makers focused on changing the health care system. The Nursing Outcomes Classification is the most comprehensive classification of nursing-sensitive patient outcomes currently available for nurses to use with individuals, families, and communities across the care continuum and in specialty practice.

Marion Johnson
Meridean Maas
Updated by Sue Moorhead

Nursing Practice Models

A nursing practice model can be described as a guide, a road map, or a framework that provides a structure for the organization and the delivery of care. Practice models have been developed by administrators and managers in response to changes in health care. Over the years, practice models used within organizations have resulted in various outcomes, including decreased cost and increased quality of care. Several practice models have incorporated dimensions such as interdisciplinary practice, differentiated practice, and communication as integral components of the framework.

The goal of most nursing practice models focuses on decreasing cost, improving quality outcomes, increasing nurse satisfaction, autonomy, financial compensation, and impact on patient satisfaction with care. Models developed during the past decade have focused on shared governance, professional practice, collaborative governance, theory-based practice, and transitional models of care.

Shared governance is designed to increase nursing’s presence in the health care system by differentiating responsibilities of providers based on education and experience while compensating expert practitioners financially. This model provides opportunities for shared decision making and organizational participation through committee work. Evaluation of successful implementation of the model has varied. Cost and commitment to the governance process have become issues, although evaluation reports indicate satisfaction with staff participation in decision making and teamwork. Some continue to use the
model, whereas others have abandoned it for other structures.

Use of professional practice models and collaborative governance is a more recent practice model and builds on some aspects of shared governance. The model focuses on the contribution of all professionals within the organization, including nurses and other providers. Collaborative governance is used to implement many of the components of the professional practice model. A committee structure is developed to involve staff from across disciplines to participate in the leadership of patient care services. Interdisciplinary team building is used to bring about change. Emphasis is placed on communication among caregivers and respect for each discipline's contribution to quality patient care. The model offers individuals who deliver patient care at all levels a voice in decision making through a committee structure and open forums. The goal of the model is to work toward increased recognition of all providers and as a result improve the work environment and patient care outcomes.

Theory-based practice models incorporate nursing, and theoretical perspectives outside the discipline to guide practice. Other models have implemented midrange theories (e.g., pain and stress) to direct practice. Community-based practices have focused on prevention and risk reduction to decrease mortality related to smoking. Nursing theories also have been used as practice frameworks. For example, advanced practice nurses in managed care setting structured nursing practice around the Neuman system model. Nursing practice models have been found successful in directing resource utilization and staffing. In addition, nursing models have been used with high-risk populations in rural communities to demonstrate the impact of nursing interventions (e.g., teaching) on decreasing cost while improving and maintaining health across populations and settings.

Transitional models of care have been developed to focus on care outcomes such as cost, length of stay, and patient satisfaction. Models using advanced practice nurses as case managers or clinical specialists enable patients to move rapidly from the acute care settings to a less costly care site, such as the home.

Use of various models to guide nursing practice helps to foster the philosophy, values, and beliefs of an organization. A nursing practice model can serve as a structure for the planning and direction of nursing and health care and help guide resource distribution. Strategic planning is improved as participation from all providers in organizational decisions can occur when nurses have a shared vision about health care. Through the use of nursing practice models, practitioners from beginner to expert can be recognized for unique contributions to care and for their educational and clinical expertise.

Organizing care around a nursing practice model also can create a stronger patient-centered environment, where providers can come to know the patient and use nursing knowledge to improve care outcomes. A professional practice model can help to expand nursing's leadership for patient care and foster those behaviors associated with patient, family, and community health. Through practice models, new strategies and nursing interventions can be generated and tested to expand nursing knowledge and inform clinical practice.

With the continued emphasis on health care reform, cost savings, and quality, it is essential that practice be implemented within a framework that is realistic and useful. Within nursing, the continued creation of practice models will promote quality care and facilitate the articulation of nursing's contribution to care outcomes. Emerging practice models that are patient-centered and respectful of the contribution of all providers will foster quality health care for all and initiate creative approaches to practice that can maintain and sustain individuals in less costly environments. Through teamwork, cooperative planning, and increased participation in decision making, system members can move
the organization toward a shared vision and new directions in care delivery.

DOROTHY A. JONES

Nursing Process

Nearly all authors define the nursing process as a problem-solving process composed of the elements of assessment, planning, implementation, and evaluation. Many a priori assumptions have been identified and studied concerning the nursing-process approach to patient care that includes decision making as a characteristic of the process. These assumptions are that the nursing process is a holistic, scientific, individualized, problem-solving approach with an emphasis on diagnosing. The concept emerged as early as the 1950s from Lydia Hall and was more directly described by Orlando (1961).

Interest in the type of systematic identification of a nursing process spread rapidly, as evidenced in many proceedings, position statements, and policies from groups as influential as the American Nurses Association and the Joint Commission on the Accreditation of Hospitals. By the mid 1970s there was widespread implementation underway. Early writings began to emerge in the literature at this time. Although little research appeared in publications, writings in journals and textbooks were abundant, promoting the process as a useful tool for teaching and understanding nursing. It was commonly held that full implementation of the nursing process would bring about radical changes in nursing education and nursing practice. In the late 1970s the World Health Organization (WHO, 1977) endorsed the use of the nursing process. With this support the United Kingdom quickly adopted the approach throughout nursing.

A review of the research on nursing process in the past 15 years has focused less on the merits, processes, and structure of the nursing process and more on the study of the implementation of the nursing process. A large amount of the research conducted on this concept has come from the United Kingdom. However, studies on the implementation of the nursing process in both the United States and the United Kingdom reveal that nursing process has not been implemented. Researchers have attempted to identify and study what barriers exist to the full use of the nursing process as identified by educators and clinicians in both countries. Studies focused on the attitudes of nurses, environmental factors, educational preparation, strategies to promote and encourage use, and instrument development to measure the concept more empirically. The reports were very consistent in finding that nurses placed a high value on the nursing process as a vehicle to provide quality, individualized, patient care, although they did not implement the nursing process regardless of their preparation and knowledge of the process or their educational level or years of experience. The data indicate that even those novice nurses recently educated within the nursing process did not use it in actual patient situations when providing independent nursing care.

There are problems with the evaluation and study of such a multidimensional concept as the nursing process. A review of the literature reveals few objective indicators or criteria to measure this concept. A variety of research designs and methodologies have been described in the literature primarily aimed at investigating the implementation or lack of implementation. Instrument development to measure the nursing process has been reported in the literature. Authors have designed quantitative studies using such strategies as attitudinal questionnaires with complex analyses, intervention studies intended to compare group outcomes, retrospective studies, and questionnaires assessing documentation. Other research strategies to study implementation issues have been inductive in nature. Researchers have used extensive literature analyses on the subject, grounded theory approaches, action research, direct obser-
There is a considerable amount of unpublished dissertation work in the United States addressing issues and concerns about educational variations, environmental impact, and barriers in attitude and structure to the full implementation of the nursing process. Intervention studies have attempted to influence attitude and behavior with motivational therapy, increased education through innovative teaching strategies and on-site inservice, and skills-reinforcement strategies.

Throughout the reported studies a clear theme emerges. The profession of nursing holds a high value for the nursing process. There seems to be a convergence of thinking that it is the best vehicle to individualize patient care. Nurses verbally articulate this commitment and value on behalf of the profession and practice of nursing, but consistently the data support the reality that nurses do not use the nursing process in practice and that the assumptions and characteristics of the nursing process are not supported as tested in a myriad of research approaches.

Researchers interested in this field in the future might take some direction from this review as well as from clinical judgment. There are strong indications that a scientific, analytical, systematic approach to patient care is of value to the novice student who experiences the complexities of the human condition in early training. However, equally supportive research indicates that more advanced students and practicing nurses revise and adapt the nursing process within the realities of practice. Some nursing process researchers, as well as those that study clinical judgment (decision making), call for a new model that reflects a more holistic approach to analyzing patient situations and arriving at individualized care that is open to multiple ways of knowing and the evolving contexts of the environment and the patient. One future direction might be generating theory-based practice models for individualized patient care and testing the effectiveness of these new process models. This research may contribute greatly to the new outcomes-focused initiatives shaping nursing for the 21st century.

SALLY PHILLIPS

Nursing Studies Index

The Nursing Studies Index is a four-volume, annotated, guide to literature on nursing as published in English from 1900 through 1959. The literature indexed was cumulated in a broad and systematic search of periodical and nonperiodical sources and the indexing of everything in those journals, books, and pamphlets of an analytical or historical nature that involved nursing or nurses. The Index was designed to serve a public with widely different interests and educational backgrounds, and as such the indexing staff developed an inclusive policy. Historical and biographical articles and monographs were included as were articles believed to involve nurses or nursing. No effort was made to index publications of interest to nurses and the Index did not supplant Index Medicus, Hospital Literature Index, the Education Index or other essential library tools.

Computer technology has stimulated renewed interest in bibliographic searches but at the same time has relegated non-digital documents such as the Nursing Studies Index to remote corners of health science libraries if they are retained at all. The Nursing Studies Index was as important when published in 1963 as the Internet is today. Both have made it possible to access professional literature and became indispensable library tools in their day.

The Nursing Studies Index filled a void in the development of the modern nursing profession. The professional literature was scattered and inaccessible to those who desired to systematically review a topic. This was especially true of nurses involved in research, but it also concerned practitioners and teachers. Virginia Henderson, director of the indexing project, was aware of the challenge in accessing nursing literature because of her involvement in two related activi-
ties: textbook writing, and review and critique of nursing research. The latter project was performed under the direction of Leo Simmons and together they published a volume entitled *Nursing Research: A Survey and Assessment* (Simmons & Henderson, 1964). Henderson had previously prepared two editions of the textbook, *Principles and Practice of Nursing* (Harmer & Henderson, 1939, 1955).

The index is organized chronologically, with volume I covering the years 1900 through 1929; II, 1930 through 1949; III, 1950 through 1956; and IV, 1957 through 1959. They were published inversely, volume IV first in 1963 followed by volumes III, II, and I in 1966, 1970, and 1972, respectively. The entries are arranged using the first edition of *Medical Subjects Headings* (MeSH, 1960). MeSH was employed in the hope that both doctors and nurses would access each other’s professional literature when searching topics of mutual interest. Contemporary, automated, library database literature searches make this hope more remote as a keystroke now divides the medical and nursing literature, even when the topics generate results applicable to both fields. Most thorough database searches on nurses and nursing now require the use of at least two databases: *Cumulative Index to Nursing and Allied Health Literature* (CINAHL), and *Index Medicus* (Medline and PubMed) as some nurse-written and nursing publications appear in medical journals only.

Volume IV of the Index contains a classification system for nursing studies that was not used in the work. The classification scheme is instructive and timely now that the proliferation of professional literature has made it challenging to place articles and studies in context and into mutually exclusive and exhaustive categories. Organizing entries for the *Encyclopedia of Nursing Research* is one possible use for the *Classification for Nursing Studies* (Henderson et al., 1963, p. xii).

The *Nursing Studies Index* was the direct forerunner of the *International Nursing Index* (*American Journal of Nursing*, 1966), once the standard reference to nursing literature. The 6-year gap between the Index and the 1966 beginning of the *International Nursing Index* was filled by the *Cumulative Index to Nursing Literature*. CINAHL is now the primary source for digital searches of professional nursing literature (Seventh Day Adventist Hospital Association, 1961, 1967) while the nursing journals subset of *Index Medicus* is a close second. The *International Nursing Index* was discontinued by Lippincott, Williams, & Wilkins after the *American Journal of Nursing* was sold to them by the American Nurses Association.

The four-volume Index is now used primarily for historical research. It is still the only source of citation information about the profession cumulated before 1961. Henderson went on from the Indexing project to write a sixth edition of her text, *Principles and Practice of Nursing*, coauthored with Gladys Nite (1978). It is the only edition that capitalized on her exhaustive knowledge of the professional literature, and as such, is perhaps the first evidence-based nursing textbook and the most important book written on nursing in the 20th century.

**Edward J. Halloran**

### Nursing Workload Measurement Systems

Nursing workload systems refer to the array of methods and procedures designed for the determination and allocation of nursing personnel in both inpatient and community settings. Some of the systems are based on the concept of patient classification, yielding an average number of hours of care for each patient category. Others identify a unique care-time requirement for each patient. In general, the systems have become a major component of the management of nursing resources.

Nursing resource management is not a new concept. Florence Nightingale not only addressed the question of how many nurses were needed for her many exploits but gave serious thought to the larger question of hu-
man resource planning. From a historical perspective, Giovannetti (1994) identified three major perspectives for addressing the questions related to nurse staffing. First, staffing decisions were made primarily on the basis of the perceived requirements of recognized leaders in the field, employing both personal and professional sources of power. This approach was employed by Nightingale and remained dominant until about the mid-1930s. The second perspective, in part driven by rapid growth in both the size and complexity of institutional care and the demand for a less variable assessment, led to the development of global staffing standards. Fixed staff-to-patient ratios in terms of hours per patient-day became the norm. This approach assumed that the basis for staffing was the number of occupied beds, and thus the staff required was a function of the number of occupied beds multiplied by the global standard hours per patient-day.

The work of Connor, conducted at the Johns Hopkins Hospital in the 1960s, was instrumental in bringing about a more scientific perspective, that involved the concept of classification theory coupled with use of time studies to determine the average amount of care time for each patient category. In contrast to global standards, the focus of the measurement model attended to the variable needs of patients who occupied the beds (Connor, Flagle, Hseih, Preston, & Singer, 1961). This was the beginning of the third stage, the development of workload measurement systems. Connor developed a three-category patient classification scheme using criteria from observational studies of the direct nursing care time provided to patients. The criteria for assigning patients to categories included physical needs (based on activities of daily living), emotional needs, selected treatment needs such as oxygen and suctioning, and certain patient states such as unconsciousness and impaired vision. Following the work of Connor, there was a proliferation of nursing workload measurement systems, developed by individual nurse investigators, institutions, and vendors. A number of sources are available for the reader interested in the historical development in the United States, Canada, and the United Kingdom (Baar, Moores, & Rhys-Hearn, 1973; Giovannetti, 1978).

The terminology employed in reference to nursing workload measurement systems varies widely, and according to Edwardson and Giovannetti (1994), has contributed to both misunderstanding and misuse. The term patient classification systems is frequently used, leading to confusion with many other types of patient classification systems such as diagnostic related groups (DRG), case mix groups (CMG), and medical severity of illness systems. Further, many nursing workload measurement systems do not employ the concept of grouping or classification of patients. A common nonclassification approach employs the development of standard times for each nursing task. Staffing calculations are then determined on the basis of the unique set of tasks required for each patient. The terms nursing severity, nursing acuity, and patient dependency systems have also been used to label nursing workload measurement schemes, although these terms suggest a purpose or intent beyond the assessment of nursing care time. Further, the usage of these terms has frequently led to the erroneous assumption that the more acute or serious the patient’s condition is, the more nursing care time is required. The preferred and probably most accurate term used in North America appears to be that of nursing workload measurement systems.

A variety of approaches to the measurement of nursing workload has been developed; and although substantial differences exist among the approaches, they all aim to estimate the total hours of nursing care, including both direct and indirect time required to care for patients. Most employ a prospective or predictive approach to the assessment of patients’ nursing care needs; however, as the systems are increasingly used for costing out nursing care, retrospective assessments are common. Edwardson and Giovannetti’s (1994) integrative review of systems is a comprehensive source for the research base of the systems, whereas Lewis (1989) contains
Nutrition in Infancy and Childhood refers to dietary intake necessary to support optimal growth and developmental processes from birth through the school-age years. Substantial recent research attention has focused on the role of nutrition in health promotion and disease prevention across the life span. Dietary intake has emerged as a major modifiable determinant of numerous chronic diseases including hypertension, osteoporosis, type 2 diabetes, some forms of cancer, and coronary heart disease. Accumulated data suggest that many of these disease processes begin early in life and are influenced over time by patterns of dietary intake. Obesity, the most prevalent nutritional disorder in childhood and adolescence, is linked with many of these chronic conditions. Nutrition has always been a cornerstone of pediatric primary health care; however, these collective diet-disease observations, primarily of adult populations, have placed increasing emphasis on preventive interventions beginning early in life.

Infancy is a time of rapid growth and developmental change in all domains including physical, cognitive, and psychosocial processes. Energy requirements during this period of the life span exceed others and approximate 90 to 100 kilocalories per kilogram (kg) of body weight per day. Recommended (or reference) intakes of most nutrients have now been established and appear to fulfill the unique nutritional needs of infants and young children. The Food and Nutrition Board of the National Academy of Sciences (NAS) has provided Estimated Average Requirement (EAR) and Adequate Intake (AI) reference data for infants (birth to 6 months of age and 7 to 12 months of age), toddlers (1 to 3 years of age), and children of early school-age (4 to 8 years). The currently recommended energy intakes are based on total energy expenditure measured by the doubly labeled water technique plus allowance for growth based on changes in body composition. These are about 15% lower than the previous Recommended Daily Allowance (RDA) established requirements. Sufficient fat for essential fatty acid requirements (0.5–1.0 g/kg/day of linoleic acid plus a smaller amount of alpha-linoleic acid) and
sufficient carbohydrate to prevent hypoglycemia and/or ketosis is required (~5.0 g/kg/day). Controversy continues regarding the need for long-chain polyunsaturated fatty acid (LC-PUFA) supplementation (for formula-fed infants). A recent evidence-based report to the Food and Drug Administration reaffirmed selected neurodevelopment benefits associated with this supplementation; however, since results were not consistent across studies, infant formula manufacturers have the option to include LC-PUFA.

The American Academy of Pediatrics Committee on Nutrition (AAP-CON) (1997) recommends human milk as the ideal source of nutrition for the first 4 to 6 months of life. In situations where breast-feeding is not practical or desired, commercial formulas are recommended as the alternative form of infant nutrition. Recent AAP-CON (2004) recommendations reaffirm human milk or commercial formula as the primary milk source throughout the 1st year of life and discourage cow’s milk, reduced fat and evaporated milk. In addition, breast-fed infants should receive 400 International Units (IU) of Vitamin D daily and iron supplementation at 4 months of age.

Accumulated data indicate that the age of introduction of supplemental foods should not be rigidly specified; however, 4 to 6 months of age appears to be optimal for the majority of healthy term infants. AAP (2004) emphasizes the introduction of single-ingredient foods, started one at a time at weekly intervals, to allow for the identification of food intolerance. Progression of feeding practices beyond this point may vary as a function of individual, family, cultural, and economic factors. Achievement of individual growth and developmental milestones, however, is universally recommended as a major determinant of nutrition throughout the 1st year of life (AAP).

Although significant advances in the art and science of infant nutrition have been made in the past 2 decades, many challenges remain. A continuing focal point for pediatric health care professionals is increasing the proportion of women who breast-feed in the early postpartum period and throughout the first 6 months of life. Breast-feeding has increased in some segments of the population; however, national goals, as indicated in Healthy People 2010, are far from realized. The prevalence of iron-deficiency has decreased in the past several decades; however, data indicate that low income, ethnically diverse infants continue to be a population at-risk.

In addition to supplementation of commercial formulas with LC-PUFA, recent research attention has focused on the relationship of infant nutrient intake and risk factors for adult-onset cardiovascular disease (CVD), the protective role of breast-feeding in prevention of childhood and adolescent overweight, and gene-diet interactions early in life. Answers to questions raised in each of these areas will assist in defining guidelines for preventive interventions relevant to dietary intake in early life.

The epidemic of overweight in children and adolescents in the United States combined with the national emphasis on the role of nutrition in health promotion and disease prevention has prompted several recent surveys of dietary intake in children and youth. Methodological differences make cross-study comparisons difficult to interpret; however, accumulated data indicate that dietary patterns of U.S. children are not consistent with recent recommendations. Data from the National Health and Nutrition Examination Surveys (NHANES) indicate that dietary fat intake has decreased over the past 2 decades from 36.3% to 34% of total food energy intake (EI); however, saturated fat intake (12% to 13% of EI) exceeds current recommendations (≤ 30% of EI). Paralleling the NHANES prevalence and trend data for those who are overweight, minority youth (Black and Mexican-American) have significantly higher fat intakes than their white counterparts. In addition, data from the Youth Risk Behavior Surveillance (YRBS) indicate that almost 80% of schoolchildren do not consume the recommended 5 or more servings of fruits and vegetables per day. Collectively, these observations point to the im-
Importance of both high-risk and population-based preventive interventions focused on the determinants of children’s patterns of dietary intake.

Numerous agencies have advanced dietary recommendations for children and youth. Recent recommendations reflect the state of knowledge regarding diet-health relationships and place emphasis on prudence and moderation in macronutrient consumption. While specific RDAs vary as a function of age and other individual factors, recent guidelines also emphasize increased consumption of soluble and insoluble fiber and decreased consumption of sucrose and sodium. The American Academy of Pediatrics (2004), and the American Heart Association are consistent in recommending that children’s diets should provide calories to support growth and developmental processes, maintenance of desirable body weight, and include a variety of foods. In addition, daily food intake should provide ≤ 30% of total calories from fat, less than 10% from saturated fat, and less than 300 mg of cholesterol.

Pediatric health care professionals are faced with both challenges and opportunities in implementing these guidelines across health care settings. Translating provider-oriented dietary guidelines and recommendations for consumers of varying developmental, educational, and cultural backgrounds is a particular challenge. The revised Dietary Guidelines for Americans (forthcoming in 2005) will provide more specific recommendations on implementation. From a pediatric population perspective, numerous factors influence dietary intake including the contexts of family, school, and community. Traditional, individualized approaches to dietary behavior change in children and youth have yielded varying results. Recent data support earlier observations and suggest an ecological approach to improving the nutritional status of U.S. children with efforts that extend beyond the individual level to the school and community environments. By definition, such interventions will be multicomponent, require a multidisciplinary team approach, and involve formulation and implementation of health policies on both local and national levels. With knowledge of nutritional science, human behavior, and experience and expertise across the continuum of health care, nurses and nursing are particularly well-qualified to participate in these efforts.

Programs of nursing and multidisciplinary research focus on feeding practices and dietary intake in infancy and childhood; results to-date have contributed to the existing body of knowledge in these areas of pediatric health care and have influenced clinical practice. Nurse researcher and scholars have also contributed to evidence-based scientific statements and guidelines designed to improve the nutrition of infants, children, and adolescents in clinical and community-based settings. As Kennedy (1997) observed, nursing research has contributed substantial information relevant to neonatal and preterm infant feeding. Nurse-initiated research focused on infancy and childhood has been primarily descriptive in design; however, nurses have contributed in various roles in multidisciplinary research that incorporated dietary interventions. Relevant programs of nursing research focused on promotion and determinants of breastfeeding in diverse populations include those conducted by Dr. Linda Brown and colleagues at the University of Pennsylvania and Dr. Paula Meier at the University of Michigan. Drs. Mary and Marguerite Engler at the University of California-San Francisco have implemented a program of research focused on endothelial function and dyslipidemia in children with emphasis on the effects of antioxidants. Using a gene-diet-environment interaction paradigm, they are currently extending this research with inclusion of additional genetic determinants of CVD. With emphasis on prevention and management of type 2 diabetes in children and youth, Dr. Margaret Grey and colleagues at Yale University include nutritional assessment and management as a major component of this well-established program of research. Finally, in developing programs of research in Thailand, nurse researchers Pulsuk Siripul and Piyanuch Jittanoon are focusing on school-based
programs for improving dietary intake in children and youth.

A major challenge for all school-based and other nutrition interventions is maintenance of behavioral change over time. From a health-promotion and disease-prevention perspective, adherence to dietary recommendations continues to be a viable area for nursing and multidisciplinary research.

Laura Hayman

Nutrition in the Elderly

Research on nutrition in the elderly focuses on the older person’s (age 65 years and older) balance of nutrient intake, physiological demands, and metabolic rate along a continuum from optimum to poor nutrition (DiMaria-Ghalili, 2002). Older persons are particularly vulnerable to poor nutrition as a result of normal aging, chronic diseases, and social, psychological, and economic factors. In a recent review, prevalence rates for malnutrition in the elderly ranged from 10% to 85% (Chen, C. C., Schilling, & Lyder, 2001). While researchers in other disciplines have significantly contributed to the science of geriatric nutrition, nurse researchers are also making notable additions. As the population continues to age, it is even more imperative for nurses to examine nutrition in the elderly, since assessing the nutritional needs of patients is an important role for the nurse (Nightingale, 1969) in the promotion, prevention, and restoration of health.

Nurse scientists have focused on varied aspects of nutrition in the elderly including feeding the older person with late-stage dementia, examining the relationship between nutritional status and health outcomes in elderly coronary artery bypass graft patients, evaluating the role of arginine on wound healing in the elderly, and identifying predictors of malnutrition in nursing home residents. Amella (1999) examined the interaction that occurs between elderly nursing home residents with dementia and the relationship with nurse aide caregivers on the amount of food consumed. The quality of the reciprocal relationship was found to be related to the proportion of food consumed. Extending this work, the resistance or willingness to accept assistance at meals by persons with dementia was shown to be related to personal interaction and contextual factors. The quality of the interaction between the caregiver and the person being fed is one important determinant in the resistance to feeding persons with dementia. These findings provided a framework for a study evaluating a mealtime intervention that can be used by in-home caregivers to maintain or increase food intake in older persons with dementia. This program of research is significant in that it provided evidence that it is not merely the quantity of nutrients consumed that impacts nutrition in older persons with dementia, but the contextual aspects of feeding and eating are also important.

In a study evaluating the changes in nutritional status and postoperative outcomes in elderly persons undergoing elective coronary artery bypass grafting (CABG) surgery, Di-Maria-Ghalili (2002) demonstrated that older persons lose weight from the preoperative (preop) period to the 4–6 weeks postdischarge period. Furthermore, the more weight lost, the lower the older person’s self-reported physical health and the higher the likelihood of hospital readmission. The initial weight lost from preop to postdischarge is never fully recovered, since weight at 18 month follow-up is still lower than preop weight. Older persons with depressive symptoms postdischarge also lost more weight than those persons without depressive symptoms postdischarge. While both older and younger persons experience weight loss from preop to postdischarge, older persons never recovered the initial weight lost, even 3 years after surgery. This work is significant because weight loss is an ominous sign in older persons and an indicator of frailty. Future directions include development of an explanatory model of factors contributing to weight loss in the elderly as the basis for a targeted intervention study.
Arginine, a nutrient shown to enhance inflammatory and immunological responses in animal models (Stechmiller, Childress, & Porter, 2004), is being evaluated in a prospective randomized trial as a supplement in older nursing home residents with pressure ulcers. This work is significant because it is targeted at a vulnerable group of elderly at nutritional risk who could benefit from specific nutritional interventions. In order to restore optimal health, additional programs of research in which targeted interventions are developed and tested for a specific group of older people with nutritional risk are needed.

Determining the prevalence of malnutrition in any group of older adults is not a "novel" research topic, but the ability to determine the prevalence from large data sets has important implications for the ease in which the older person at nutritional risk is identified. Crogan, Corbett, and Short (2002) have shown the most significant predictors of protein-calorie malnutrition on admission using the Minimum Data Set to be weight loss, leaving 25% or more of food uneaten at most meals, psychiatric/mental diagnosis, deteriorated ability to participate in activities of daily living, and old age. These findings are significant in that they could lead to development of a set of routine factors identifying older patients at nutritional risk upon nursing home admission without extensive anthropometric and invasive laboratory analysis so that appropriate nutrition interventions can be instituted in a timely fashion, thereby promoting positive health outcomes.

Since nutrition is a complex phenomenon, there is no gold standard in the measurement of nutritional status. A variety of anthropometric data (weight, height, skin-fold thickness, muscle circumference, bio-impedance analysis), visceral protein levels (serum albumin, transferrin, pre-albumin), nutritional screening tools (Determine Your Nutritional Health Checklist, Mini-Nutritional Assessment, Subjective Global Assessment), and dietary intake studies (food recalls, diet diaries, measurement of food consumed) are used in studies on nutrition in the elderly. The ability to quantify nutrition using several measurement tools often detracts from the ability to consistently compare the results of nutrition studies in the elderly. The positive aspect of a variety of measurement tools is that it facilitates the ease by which a researcher can measure components of nutrition status if there is limited access to a specific measurement tool.

For the last 3 decades, the prevalence of poor nutrition in hospitalized and institutionalized older people has been clearly documented. The Nutrition Screening Initiative (NSI), a 5-year multifaceted effort to promote routine nutrition screening and better nutrition care for older Americans communicated the importance of malnutrition in the elderly to professional and lay groups (NSI, 1991). Four major nursing organizations (National League for Nursing, American Nurses’ Association, National Gerontological Nurses Association, and National Association of Directors of Nursing Administration in Long-Term Care) served on the Blue Ribbon Advisory Committee for the NSI. The work of the NSI is important in that it was a response to the Department of Health and Human Services’ call to increase the proportion of health providers who provide nutrition screening in the Health People 2000 report. The work of the NSI also validates the important research effort that must be continued to promote, maintain, and restore optimal nutrition in the elderly.

Future studies need to be aimed at identification of the most vulnerable older people who would benefit most from targeted nutritional interventions to promote positive outcomes. It is quite obvious that poor nutrition is not an “all or nothing phenomenon,” particularly in this age group. Malnutrition is an indicator for the complex phenomenon of frailty. The major factors related to frailty are sarcopenia, atherosclerosis, cognitive impairment, and malnutrition (Morley, 2003). To promote optimal nutritional health, designing studies that solely focus on dietary interventions may not be sufficient without considering the antecedent or contributing factors to poor nutrition in this age group. A bio-behavioral approach to studying nutri-
tion in the elderly is warranted so that the physiological, psychological, and social factors can also be examined.

Rose Ann DiMaria-Ghalili
Obesity as Cardiovascular Risk Factor

With over 60% of the American population classified as overweight or obese, and with the medical costs attributable to obesity ranging upwards from $100 billion per year, the national, indeed global, crisis of obesity stands in the ignominious position of being the one epidemic that nursing research has virtually ignored. In the last few years there has been a slow increase in the number of studies and publications by nurses that focus on obesity. While cardiovascular disease (CVD) and many of its risk factors have been prominent in the nursing literature for quite some time, the intersection of obesity and cardiovascular risk has been virtually unexplored from a nursing perspective. The most common approach of nurses studying obesity and CVD has been to include body weight, either directly measured or self-reported, in descriptive studies of CVD risk factors. This data point subsequently is analyzed as Body Mass Index (BMI), calculated as weight/height (kg/m).

Children. Among 340 elementary school children, 53% had one or more risk factors for CVD (Cowell, Warren, & Montgomery, 1999). Moreover, 25% of the children were obese, and among the children who were obese, 47% had additional risk factors for CVD. Despite a low prevalence of poor fitness, 84% of the low-fitness children also had high blood pressure or were obese. In a study involving 32 third-grade children (Skybo & Ryan-Wenger, 2002), the most prevalent risk factors for heart disease were high body fat percentage and environmental tobacco smoke in the home. Few children had a body fat percentage within the healthy range. Thus, the investigators suggested that the third-grade children possessed some of the known risk factors for CVD, with some of the risk factors being under the control of the child.

Women. A study was conducted to determine whether there was a difference between African-American and Caucasian women in the self-reported CVD risk factors of obesity, physical inactivity, and smoking (Harrell & Gore, 1998). In that study of 1,945 women aged 23–53 years, African-American women of low and middle socioeconomic status (SES) were much more likely than high SES African Americans to be obese, inactive, and smokers. Among Caucasian women, however, only those with low SES had the greatest prevalence of these three risk factors for CVD. After controlling for income and education, African-American women were more than twice as likely as Caucasian women to be obese and inactive. A secondary analysis of the Canadian National Population Health Survey (Cycle I: 1994/95; Cycle II: 1996/97) focused on the CVD risk factors of physical inactivity, hypertension, cigarette smoking, diabetes, obesity, and socioeconomic status (SES) among women aged 20 years and older (Wong & Wong, 2002). Results indicated an increased prevalence of obesity, diabetes, hypertension, and physical activity from Cycle I to Cycle II, and supported previous studies that there is an SES gradient for CVD risk factors. In this study, physical activity, hypertension, and household income—but
not obesity—emerged as significant predictors of heart disease. 

Older adults. In a study of patients after coronary artery bypass grafting (CABG), female sex (odds ratio 4.7) and obesity (odds ratio 3.7) significantly predicted hospital readmission (Sabourin & Funk, 1999). Other investigators used a cross-sectional design to assess CVD risk factors in Korean-American elderly, aged 60–89 years, who resided in a large city in the eastern United States (Kim, M. T., Juon, Hill, Post, & Kim, 2001). In these older adults, hypertension was the leading CVD risk factor, followed by high blood cholesterol, overweight, sedentary lifestyle, and smoking.

Intervention studies. Intervention studies of obesity as a CVD risk factor where major dependent variables were physiological, were only found when nurses appeared as members of multidisciplinary investigator teams. One of these teams (McMurray, Ainsworth, Harrell, Griggs, & Williams, 1998) examined cardiovascular fitness (VO\(_{2\text{max}}\)) and physical activity (PA) rather than obesity per se as CVD risk factors in young adult men and women. A cross-sectional analysis revealed that those in the highest tertile of VO\(_{2\text{max}}\) had a reduced relative risk for elevated cholesterol, blood pressure, and obesity, while those in the highest tertile of self-reported PA only had a lower relative risk for high systolic blood pressure (BP). After a 9-week exercise program for low-fit young adults, only those who increased VO\(_{2\text{max}}\) had a reduction in relative risk for high cholesterol and systolic BP, but not for diastolic BP or obesity.

From a research program focusing on obesity and sedentariness as major risk factors for CVD in postmenopausal women, and the corresponding lifestyle modifications of weight loss and physical activity to mediate these risks, Nicklas and colleagues reported the physiological aspects of these phenomena in numerous publications. The sequential effects of a 2-month American Heart Association (AHA) Step I diet and subsequent weight loss through 6 months of hypocaloric AHA diet and low-intensity walking were examined for their effects on lipoprotein lipids in obese, postmenopausal women (Nicklas, Katzel, Bunyard, Dennis, & Goldberg, 1997). The AHA diet alone lowered concentrations of total, low-density lipoprotein (LDL-C) and high-density lipoprotein (HDL-C) cholesterol. Weight loss increased HDL-C concentrations, but brought no additional changes in total cholesterol or LDL-C. Reductions in total cholesterol and LDL-C were significant for participants with hypercholesterolemia, but not for normocholesterolemic women. The investigators conjectured that because the AHA diet alone lowered HDL-C in the total sample of women, a low-fat diet without substantial weight loss may not be beneficial for improving lipoprotein lipid risk factors for CVD in obese, postmenopausal women with normal lipid profiles. In research to determine the specific dietary factors associated with the decrease in HDL-C on an AHA diet alone (Bunyard, Dennis, & Nicklas, 2002), the one significant dietary change was the increase in the percent of energy consumed from simple sugar. There were no relationships between changes in HDL-C and changes in the percentage of energy consumed from total, saturated, polyunsaturated, or monounsaturated fat.

Findings from a study of racial differences in resting metabolic rate (RMR) fat oxidation and VO\(_{2\text{max}}\) in obese, postmenopausal women showed that RMR, adjusted for differences in lean mass, fat oxidation rate, and VO\(_{2\text{max}}\), were significantly higher in white than in black women (Nicklas, Berman, Davis, Dobrovvolny, & Dennis, 1999). In a multiple regression model including race, body weight, lean mass, and age, lean mass was the only independent predictor of RMR, while race was the only independent predictor of fat oxidation. The best predictors of VO\(_{2\text{max}}\) were lean mass and race. The efficacy of a 6-month hypocaloric AHA diet and low-intensity walking in improving CVD risk factors in obese Caucasian and African-American postmenopausal women was evaluated by measurements of body composition (dual-energy x-ray absorptiometry), abdominal fat areas (computed tomography scan), lipoprotein lipids, insulin, glucose tolerance, and blood
Observational Research Design

Observational designs are nonexperimental, quantitative designs. In contrast to experimental designs in which the investigator manipulates the independent variable and observes its effect, the investigator conducting observational research observes both the independent and the dependent variables. In observational studies, variation in the independent variable is due to genetic endowment, self-selection, or occupational or environmental exposures. Because of the myriad sources of bias that can invalidate naturally...
occurring events, rigorous designs and methods are required to minimize bias. Observational designs should not be confused with observational methods of data collection.

Observational designs are used when there is not enough knowledge about a phenomenon to manipulate it experimentally. Sometimes research involving human subjects is restricted to observational designs because of the nature of the phenomenon; that is, experimental research is precluded for ethical reasons.

Observational designs include quantitative, descriptive studies as well as analytical studies that are designed to test hypotheses. Descriptive, observational studies provide a basis for further study by describing and exploring relationships between variables, informing the planning of health services, and describing clinical practice for individual clients or groups of clients. In contrast, analytic research is designed to test specific hypotheses in order to draw conclusions about the impact of an independent variable or set of variables on an outcome or dependent variable under scrutiny. Observational designs are classified as longitudinal or cross-sectional. In a cross-sectional study, all the measurements relate to one point in time; in the longitudinal approach, measurements relate to at least two points in time.

A cross-sectional study, sometimes referred to as a correlational study, is conducted to establish that a relationship exists between variables. The term *correlational* refers to a method of analysis rather than a feature of the design itself. Cross-sectional studies are useful if the independent variable is an enduring or invariable personal characteristic, for instance, gender or blood type. Cross-sectional studies are also useful for exploring associations between variables.

Longitudinal comparative designs are usually undertaken to explain the relationship between an independent variable and an outcome. One type of longitudinal, comparative design is referred to as a cohort study. Although the investigator does not manipulate the independent variable, the logic and flow in a cohort study is the same as the logic of an experiment. Subjects are measured or categorized on the basis of the independent variable and are followed over time for observation of the dependent variable. In a cohort study it is established at the outset that subjects have not already exhibited the outcomes of interest (dependent variable). Thus, the time sequencing of events can be established. In other words, it can be demonstrated that the independent variable preceded the occurrence of the dependent variable.

Another type of longitudinal, comparative design is a case-comparison study. In this design the flow is the opposite of a cohort study. Subjects are selected and categorized on the basis of the dependent variable (the outcome of interest). The purpose of the study is to test hypotheses about factors in the past (independent variables) that may explain the outcome. Although case-comparison designs are not prevalent in the nursing research literature, they have great potential for studies of outcomes that occur infrequently. Furthermore, this design is very efficient because it is possible to achieve greater statistical power with fewer subjects than in other types of observational designs.

Longitudinal comparative designs are also classified according to the time perspective of the events under study in relation to the investigator’s position in time. A study is retrospective if, relative to when the investigator begins the study, the events under investigation have already taken place. A study is prospective if the outcomes that are being investigated have not yet taken place when the study is initiated. Various hybrid designs are also possible; referred to as ambidirectional studies, they combine features of both designs.

As in experimental research, observational research designs and methods are selected with the aim of minimizing bias. Bias refers to distortion in the result of a study. A biased study threatens internal validity if the distortion is sufficient to lead to an erroneous inference about the relationship between the independent and dependent variable. Potential sources of bias that can threaten the internal validity of observational studies are those re-
lated to selection, measurement, and confounding.

Selection bias is a distortion in the estimate of effect resulting from (a) flaws in the choice of groups to be compared; (b) inability to locate or recruit subjects selected into the sample, resulting in differential selection effects on the comparison groups; and (c) subsequent attrition of subjects who had initially agreed to participate, which changes the composition of the comparison groups.

Measurement bias occurs when the independent variable or outcome (dependent variable) is measured in a way that is systematically inaccurate and results in distortion of the estimate of effect. Major sources of measurement bias are (a) a defective measuring instrument, (b) a procedure for ascertaining the outcome that is not sufficiently sensitive and specific, (c) the likelihood of detecting the outcome dependent on the subject’s status on the independent variable, (d) selective recall or reporting by subjects, and (e) lack of blind measurements when indicated.

Because of the lack of randomization in a nonexperimental study, uncontrolled confounding variables are a major threat to internal validity. Unless confounding factors are controlled in the design of the study or in its analysis, distortion in the estimate of effect will result. A confounding factor operates through its association with both the independent and the dependent variables. It can distort the results in either direction; that is, it can lead to an overestimation of the relationship between the independent and dependent variables by producing an indirect statistical association, or it can lead to an underestimation of the relationship between the independent and dependent variables by masking the presence of an association between the independent and dependent variables. A distinction between confounding bias and other types of bias is that confounding is correctable at the design or analysis stage of the study, whereas bias due to selection and measurement problems are usually difficult or impossible to correct in the analysis. Confounding can be controlled or minimized at the design stage of the study by restricting the study sample or by matching the comparison groups. At the analysis stage confounding can be controlled or minimized by using a multivariable approach to the statistical analysis to adjust for the confounding factors or by examining the independent-dependent variable relationship within specified levels or categories of the confounding factors (stratified analysis). Confounding variables should not be confused with mediator and moderator variables.

In summary, observational designs are prevalent in nursing research because they are used to describe phenomena in early stages of knowledge development and provide a basis for designing experimental interventions. Additionally, they are the only feasible approach to hypothesis testing when it is unethical to manipulate the independent variable. In the absence of randomization and manipulation, myriad sources of bias can influence observations and conclusions drawn from naturally occurring events, thus, rigorous observational designs and methods are essential.

JANET C. MEININGER

Online Journal of Knowledge Synthesis for Nursing

The Online Journal of Knowledge Synthesis for Nursing (OJKSN) is a full-text peer-reviewed electronic journal published by Sigma Theta Tau International. The journal began publication in January 1994 and was the first peer-reviewed electronic journal in nursing. There is no paper version; it is completely electronic.

The purpose of the journal is to publish timely, synthesized knowledge to guide nursing practice and research. Knowledge synthesis is the gathering of research studies on a topic, assessing the validity of the findings, and asserting implications for practice from the valid findings. The process includes identifying gaps in the knowledge base that would provide direction for future research on the topic. OJKSN provides critical reviews of research pertinent to clinical practice and re-
search situations that nurses can access and use immediately. The journal does not have articles that are reports of a single study, such as you would find in other nursing research journals.

An online electronic journal delivers articles across commercial telecommunications to a computer terminal at a workstation or a personal computer. Transmission is through the Internet. The OJKSN is accessible on the World Wide Web through Sigma Theta Tau International’s web site (http://stti-web.iupui.edu). It is available through subscription, which may be either individual or institutional. A combined subscription with the Registry of Nursing Research is also available.

All articles include a statement of the practice problem, a summary of the research, annotated critical references, practice implications, directions for future research, search strategies used, and references. Features of the journal include full-text searches, access to graphical displays such as tables and charts, links to referencing in external bibliographical databases such as Cumulative Index to Nursing and Allied Health Literature (CINAHL) and MEDLINE.

“Statement of the Practice Problem Issue” is a brief statement explaining the scope of the article. “Summary of the Research” contains the review, analysis and synthesis of the research on the topic. The review is a state of the science for the topic. The extensiveness of the review depends on the depth and breadth of the research on the topic. The summaries differ from a literature review in that there is an assessment of the validity of the information contained in the research reports. It may include a meta-analysis, the statistical manipulation of findings from multiple research studies. The narrative is used to make summary statements about the research as a whole, and tables are used to describe the individual review of studies and the significant variables and findings. “Annotated Critical References” contains an abstract of the most significant research publications on the topic. A maximum of seven are annotated.

In “Practice Implications,” the specific implications for practice based on the research are presented and discussed. This section delineates what practitioners can or should do as a result of the research on the topic. The research references are cited for all practice directives so that the clinician can refer to them if desired. “Research Needed” discusses the various directions for future research and the questions that remain unanswered. Knowing about the knowledge that does not exist is often as important as knowing what exists. This section is a good guide for directing master’s theses and doctoral dissertations, as well as for clinical research studies. “Search Strategies” describes how the research cited was identified, the citation bases searched, the search terms that were used, and the years that were searched. References cited are listed in the American Psychological Association format. Each reference listed in MEDLINE or CINAHL has a hypertext link so that the entire citation, including abstract, can be accessed.

There are many advantages to an online journal. These include faster publication, immediate access, continuous publication, hypertext links, and instant access. Once a manuscript for a paper journal is accepted and revised, it may be anywhere from 6 to 24 months before it is out in print. With the electronic journal, articles are brought online generally within weeks after final acceptance and editing. The journal is available online 24 hours a day, 7 days a week. Although it may take weeks or months for an international journal to come through the mail, with a computer journal there is instant access.

Unlike a traditional print journal, where there are numerous issues a year with a varying number of articles per issue, an electronic journal has continuous publication. As an article is finalized, it is brought online. Articles are identified by the year and the article number for that year (e.g., 1997, No 11). Uniform standards are being developed for citing electronic publications.

Hypertext links allow direct access to the database of a reference (e.g., MEDLINE) for
scanning the abstract of the reference. Once the abstract is read and perhaps printed, the reader is able to click back into the article at the same spot. There is instant access to all previously published articles in the journal; keeping paper copies of back issues is unnecessary.

Subscription information is accessed through the Sigma Theta Tau International web site at http://stti-web.iupui.edu or by requesting subscription information through the international headquarters. Once a subscription is processed, the user is sent a user guide, authorization, and password.

There is a tremendous amount of knowledge available for use in nursing practice. The key is accessing, synthesizing, and having it organized to readily make clinical decisions. The OJKSN greatly increases nursing’s opportunities for knowledge-based practice, education, and research.

JANE H. BARNSTEINER

Orem’s Self-Care Deficit Nursing Theory

One of nursing’s grand theories, Orem’s Self-Care Deficit Nursing Theory (SCDNT), is a vital component of nursing’s philosophical foundation. The impetus of the theory, to define a curriculum for practical nursing, led Orem to recognize that effort needed to be exerted on the conceptualization of nursing and nursing’s relationships to patient needs and patient care. Orem proposed that nurses should be expected to have specialized abilities that qualifies a person to nurse. These abilities she called nursing agency which, together with patient needs and patient abilities, became the structure and focus of the SCDNT (Melnik, K. A., 1982).

In 1952, working as a hospital consultant nurse with the Indiana State Board of Health, Dorothea Orem was concerned about the state to which nursing was evolving. Nurses were engaging in nursing practice but were not able to articulate what nursing was. “Nursing” of the patient provided a major part of patient care. A person becomes a patient because of a legitimate inability to care for himself or herself when recovering from illness or injury. One of the problems Orem evaluated was how patient care did not truly meet patient needs. The advances in medical and allied research and treatment changed the way nurses evaluated and planned patient care. A broader concept of patient care was necessary. The active participation of patients in their treatment would be required to successfully meet the changing perspectives of patient care. Understanding the care needs of the patient was the obvious starting point for Orem. “The act of nursing is practiced by ‘doing for’ the person with the disability, by ‘helping him to do for himself,’ and/or by ‘helping him to learn how to do it for himself’” (Orem, 1956, p. 85).

This general nursing theory is accepted as a relationship between self-care agency and therapeutic self-care demands, distinguishing self-care deficit from dependent care. Orem deliberately selected the term “deficit” for this relationship to be interpreted as insufficient, not as a human disorder. The incapacity to meet demands of self-care reflects the fact that a need for nursing exists. Orem recognized an apparent discontinuity between patient care and patient needs. The concept that nurses had of their practice had not evolved at the same pace as had patient needs. The obvious starting point for Orem toward understanding the care needs of the patient was to define, “What is self-care?” “When is nursing needed?” and “How do nurses provide nursing care?” The answers to these questions are derived from three interconnected theories central to the SCDNT: the theory of nursing systems, the theory of self-care, and the theory of self-care deficit. All three theories combined become one general theory of nursing, with self-care deficit as the most comprehensive and at the core of her ideas. The relationship between the three theories is described in the following way. In the theory of self-care, self-care is an activity initiated on one’s own behalf in the interest of health and well-being. The theory of self-care deficit is the relationship between thera-
The theory of nursing systems is the deliberate practice actions of nurses carried out to meet the therapeutic self-care or develop the patients self-care agency. This answers the questions about the nature of care and the nature of nursing.

The central concepts of Orem’s theory consist of (a) Self-Care—caring for one’s self to maintain life, health, and well-being; (b) Self-Care Demands—varied degrees and kinds of care requirements needed at specific times or over a duration of time for meeting all of an individual’s needs; (c) Self-Care Agency—the power and capabilities to engage in self-care, influenced by external and internal factors; (d) Nursing Agency—the broad ability of nurses to perform nursing; (e) Self-Care Deficit—the actions and demands needed for self-care that are greater than the person’s current capability for self-care; (f) Conditioning Factors—internal or external factors that affect an individual’s ability to engage the kind and degree of self-care required (Orem, 2001). This view distinguishes self-care from dependent care and nursing care, in which the agent acts on behalf of another person. However, the substantive theoretical and practical knowledge of self-care is the foundation for both dependent care and nursing care. From this theoretical view, it is essential that nurses have substantive knowledge about self-care and understand that human beings are both the focus of their actions and the agents of their actions (Orem, 1991). In conclusion, nurses utilize the self-care deficit theory of nursing to aid them in their practice. Many clinical studies have shown that implementing Orem’s theory has a positive effect on patients, nurses, and health care organizations. Orem’s seminal work, originally published in 1971, Nursing: Concepts of Practice, has been revised to its current 6th edition in 2001. Orem’s book remains a standard, having been published in seven languages and implemented by nurses in over 19 countries. Beginning in 1989, the World Congress of Self-Care Deficit Nursing Theory, offers a forum for international developments for practitioners, researchers, administrators, and educators (World Congress of Self-Care Deficit Nursing Theory, 2004).

EILEEN VIRGINIA ROMEO
MARY JO DEVEREAUX

Organizational Culture

An organization’s culture is understood by shared beliefs, norms, values, policies, work group rules, shared meanings, expectations, and myths. Organizational culture is often used interchangeably with organizational climate (Sleutel, 2000). Reichers and Schneider (1990) traced the development of these two unique concepts. Organizational climate (the older term, traceable to the 1930s) is the group’s perceptions about the organization, whereas organizational culture (dating to the 1970s) is determined by the message inherent in the organization which gives shared meaning. Strength of the culture refers to the consistency of the message/meaning found when examining norms, values, etc. For example, strength of the research culture in hospitals was determined by a survey that looked for evidence in mission, goals, policies, and activities (Martin, P., 1993). The organizational culture is an important part of nurses’ work environment and has been shown to influence the worker, the work, and the outcomes of the work.

The work of Coeling has done most to show the utility of the concept “organizational culture” in nursing. In her 1988 article with Wilcox, she showed how to not only understand the work group’s culture, but how knowing the culture should inform management decision making (Coeling & Wilcox, 1988). How culture can impede or be a catalyst for change has been the primary focus of her work (Coeling & Simms, 1993). This body of research stressed the importance of understanding that culture for both the staff nurses and their leadership when implementing change. The work showed not how one must fit into a prevailing culture, but how
understanding organizational culture can assist in innovations and other positive changes needed for the good of the work group. Coeling asserted that organizational culture is important to inform plans for moving the organization both in new directions and more efficiently and effectively along the same path.

Organizational culture is important to assess before a nurse accepts a position or before a nurse manager selects a new employee (Barowsky, 2003; Dowd, Davidhizar, & Giger, 1999). All these authors address “fit” between new employee and the new work group. Employers are looking for indications of shared values and compatible goals; the nurse seeking a position is looking for similar matches. Consistency of message in values and verifying interpretations can lead to the right match from both manager and employee perspectives.

The leader/manager/supervisor has an important responsibility in developing the most appropriate organizational culture (Bruhn, 2001). The leader is in the best position to know the values and group rules necessary for the work important to the organization as a whole. Consistency among workers and in the work toward the organization’s mission and goals can be orchestrated through work policies, rewards, and structure. Communication is a critical means of establishing and maintaining the most appropriate culture. A leader may need to change an undesirable work culture, one that contradicts or fights with the organization’s mission and goals (Baker, C., Beglinger, King, Salyards, & Thompson, 2000). Crow and Hartman (2002) demonstrated how important it is for the leader to understand, use, and, if necessary, systematically change the culture in order to execute the work and attain the outcomes expected by the organization.

The relevance of organizational culture to outcomes has been a major topic in research, professional, and management journals the last 10 years (Larson, 2002; McDaniel & Stumpf, 1993). Sometimes the concept “organizational culture” is unnamed, but the research demonstrated that policies and practices which could be conceptualized as organizational culture provide a pronounced effect on outcomes. The outcomes identified include worker retention, quality/nature of the work, success in strategic initiatives, productivity, and quality of the outcomes. Some of these outcomes are direct, and others are indirect. What is clear is that organizational culture and the consistency of the message about key values and priorities is an important—and may be the most important—responsibility of the administrative/management team. While culture may be a major factor in dysfunction, it can be revised or revived with dramatic positive results.

The state of research currently is hampered by the limited availability of empirical tools to measure organizational culture that have good psychometric properties. Anthropology, from which the concept of culture was adopted, uses qualitative research approaches. This qualitative tradition has appropriately followed the concept into the discipline of nursing and organizational research; however, the research to a large degree often omits or does not report the accepted qualitative rigor. A quantitative approach may better link the phenomenon of organizational culture to outcomes in a causal way, clarifying the nature of the relationship. Whether organizational culture is a phenomenon that can be appropriately captured quantitatively could be debated. Because of the promise organizational culture shows for guiding both the practicing nurse and nurse managers/administrators in their interface with the work setting, the concept continues to call for more research to explain how the environment can best be managed to support excellence in practice and quality outcomes.

Supported in part by 1 R01 NR 007738 from the National Institute of Nursing Research, National Institutes of Health

PATRICIA A. MARTIN

Organizational Redesign

Organizational redesign, or restructuring, as some experts refer to the process, is the trans-
formation of an organization’s architecture and methods for providing services. It involves a revamping of structures and processes for purposes of achieving efficiency and maximum production outcome. In the case of health care organizations, the redesigned production process is expected to produce improved employee, patient, and organizational outcome. Although the term “organizational redesign” generally implies a fundamental change in the way things are done, the term also is commonly used to describe a variety of changes occurring at the unit, department, or organizational level. This variation in level of focus and measurement has posed difficulties in measuring the true effect of organizational redesign on employee and care delivery outcomes.

Studies of organizational redesign increased dramatically during the 1990s after health care institutions across the U.S. and elsewhere began instituting varying degrees of organizational change. Most of this research was conducted after health care organizations made the decision to redesign. Consequently, most redesign initiatives were implemented without the benefit of supporting evidence to guide the changes made or the effects proposed. As a result, a number of the redesign efforts failed and many institutions have reinstated some of the processes eliminated during the redesign activities.

Nursing studies of organizational redesign have explored a number of individual and organizational factors that contribute to the outcomes seen. Most investigations have focused on the employee’s response to redesign, although a few have included organizational and patient outcome indicators as well. Findings are mixed, with some studies showing improvements in nurse perceptions of work group collaboration, interpersonal relationships, and job satisfaction (Ingersoll et al., 2002) and others reporting increased uncertainty (Blythe, Baumann, & Giovannetti, 2001), worry (Barry-Walker, 2000), emotional stress (Denton, Zeytingolu, Davies, & Lian, 2002; Greenglass & Burke, 2001), dissatisfaction (Barry-Walker; Denton et al.; Greenglass & Burke), disempowerment (Blythe et al.), anger, despair (Ingersoll, Fisher, Ross, Soja, & Kidd, 2001), anxiety, emotional exhaustion, depression, cynicism (Greenglass & Burke), fragmentation of relationships (Blythe et al.), and mistrust of administration (Ingersoll et al., 2001). When redesign initiatives are targeted at the institution as a whole, redesign impact is felt at all levels of the organization, with midlevel managers also reporting feelings of inadequacy, ambiguity, frustration, and loss of position power as a result of redesign activities (Ingersoll, Cook, Fogel, Applegate, & Frank, 1999). A survey of chief executive officers in one study supported employee beliefs that the overall gains in quality of care are not as substantial as the cost savings to the institution and that the cost savings are overpowered by the serious dissatisfaction of the staff (Urden & Walston, 2001).

Several studies of organizational redesign suggested that individual and organizational characteristics can reduce the negative effects of the organizational change. Employees with higher levels of perceived self-efficacy and positive coping (Greenglass & Burke, 2001) reported less distress in response to organizational redesign. In addition, organizations that promote increased nurse involvement in decision making (Ingersoll, Kirsch, Merck, & Lightfoot, 2000; Laschinger, Finegan, Shamian, & Almost, 2001) and that have a prior history of effective change processes, which has been defined in one study as organizational readiness (Ingersoll et al.) were less likely to report serious negative effects from redesign initiatives.

Regardless of the extent of the redesign underway, staff reaction is strong. Clearly evident in the reports of organizational redesign is a level of employee disruption that is well beyond what was anticipated by the administrators undertaking the redesign initiatives. Even when information was shared, concerns were expressed about what to expect and when the disruption would end. Staff nurse and manager worry about quality of patient care also is a consistent theme across studies.
Investigations of the impact of organizational redesign on patient outcomes are less evident, although a few do exist. In a study by Sovie and Jawad (2001), redesign outcomes were assessed primarily through a comparison of nurse resource variables and their impact on patients and cost. In this study, most hospitals had implemented reductions in RN staff as a component of their redesign initiatives. Findings suggested that hospitals with the greatest reductions in RN staff have the poorest outcomes. An important finding of this study was the increased cost per patient discharge in hospitals with lower rather than higher percentages of RN staff. This cost-outcome finding was supported in a small study by Barry-Walker (2000), in which costs of care per patient-day increased rather than declined following organizational redesign.

Most of the research concerning organizational redesign has been conducted either during the course of or shortly after the redesigns were implemented. Little information is available concerning the long-term effect of these change processes and whether any or all of the redesign components remain intact. Follow-up studies would be useful to clarify which elements have been sustained or refined over time. Moreover, because the studies reflected immediate postimplementation time frames, some of the observed effect may have been the result of the turbulence caused by the change rather than the components of the redesign models themselves.

Evident in the research concerning organizational redesign is the need for better methods for determining cause and effect relationships between redesign components and outcomes seen. Determining the effect of organizational, environmental, and individual factors on redesign outcomes also is important, as preliminary results suggest differences exist across employees and work settings. Attention to the organization’s culture and history of (readiness for) change experiences, likewise, appears to be an important aspect of successful organizational redesign. Opportunities for staff nurse involvement in decision making and planning for change also is apparent.

Future investigations of organizational redesign initiatives also should focus on both the processes used to implement the redesigns and the outcomes they are expected to achieve. Without an indication of what was done, which is best identified through the process component of an organizational assessment, no cause/effect determinations can be made about the changes in the outcomes seen. In addition, the consistent use of reliable, valid instruments developed according to some theoretical framework is essential for cross-comparisons of study findings and the development of databased recommendations. The establishment of standards for the collection of organizational performance and patient outcome indicators also would be useful, with national clearinghouses for the development of comparison benchmarks. Some work is currently underway in this regard, but not all institutions can afford to participate in the data analysis processes required and many are unaware of the resources available. Published standards of practice, organizational processes, and benchmarked outcome indicators would help eliminate this concern.

GAIL L. INGERSOLL

Osteoarthritis

Osteoarthritis, the most common of the rheumatic diseases, is characterized by progressive loss of articular cartilage and by reactive changes at the margins of the joints and in subchondral bone. Clinical features can include pain in the involved joint, which is typically worse with activity and relieved by rest; stiffness after periods of immobility; enlargement of the joint; instability; limitation of motion; and functional impairment. Depending on the absence or presence of an identifiable local or systemic etiological factor, osteoarthritis has been classified into idiopathic (primary) and secondary forms. Classification of the disease is based on various combinations of clinical, radiographic, and laboratory parameters.
The prevalence of osteoarthritis is strikingly correlated with age; it is uncommon in adults under 40, but it is the number-one chronic disease in late life, with more than 80% of those over the age of 75 being affected. Osteoarthritis is a major cause of disability in older adults, and knee osteoarthritis is more likely to result in disability than osteoarthritis of any other joint. However, the prevalence of osteoarthritis at all joint sites increases progressively with age, which is the most powerful risk factor for the disease. Women are about twice as likely as men to be affected, and African-American women are twice as likely as Caucasian women to have knee osteoarthritis. The pattern of joint involvement also differs with sex: women have a greater number of joints involved and more frequent complaints of morning stiffness, joint swelling, and nocturnal pain.

Factors that appear to be associated with osteoarthritis, based on cross-sectional and longitudinal studies, include obesity, bone density, trauma and repetitive stress, and genetic factors.

The impact of osteoarthritis on function and costs of care are substantial. Patients with osteoarthritis are more likely to be limited in the amount and kind of major activities they can perform, have more restricted bed days, and are more likely to report disability. When disease prevalence figures were applied to estimates of health care utilization and disability for both rheumatoid arthritis and osteoarthritis, an aggregate economic impact some 30-fold greater was found for osteoarthritis than for rheumatoid arthritis. In addition to the functional disability and economic impact of osteoarthritis, older people with this disease experience an inordinate amount of suffering, depression, and diminished quality of life.

Treatment approaches to patients with osteoarthritis have been mainly pharmacological, usually combined with physical therapy and sometimes surgery. Although these interventions are useful, they often fail to control disease progression, and symptoms may be associated with high costs and many toxicities. In addition, they frequently fail to address important issues of patient concern, such as psychological stress, quality of life, and autonomy. Because of the chronicity of the disease, patients must learn to manage and cope with osteoarthritis on a day-to-day basis. The ability to succeed in this task differentiates those who are incapacitated from those who continue to lead full and active lives in the face of equal disease severity. For this reason, health education has a potentially important role.

One of the most common educational interventions used for chronic disease is self-management. Self-management has been described as the day-to-day tasks an individual must undertake to control or reduce the impact of disease on health status; it includes all the tasks for handling clinical aspects of the disease away from the hospital or physician’s office. For persons with osteoarthritis this may include using medications, managing acute episodes and emergencies, maintaining adequate exercise and activity, using relaxation and stress-reducing techniques, seeking information, using community services, adapting to work, managing relations with significant others, and managing emotions and psychological responses to the illness.

The “graying of America” and its concomitant increase in the prevalence of osteoarthritis poses problems for an ever spiraling health care budget. Incurable by definition, management of osteoarthritis extends over time, creating continuous costs to both patient and provider. It is important that we examine innovative ways to deliver high-quality care for older adults with osteoarthritis in as efficacious and economical a manner as possible.

Carol E. Blixen

Osteoporosis

Bone mass density (BMD) accounts for 70% of bone strength, is measured as grams of mineral per area, and is reflective of both peak bone mass and the amount of bone loss
Osteoporosis is not only the result of accelerated bone loss during aging, but may also develop because of sub-optimal bone growth in childhood and adolescence. “Osteoporosis is a pediatric disease with geriatric consequences” (Drugay, 1997, as cited in Guelder, 2000). Bone quality, a poorly understood factor, is thought to result from the bone’s micro and macro structure, biochemical composition, distribution and integrity of material components within the bone, turnover, and microdamage accumulation. That a 50 year-old woman with low bone density has a much lower risk of fracture than an 80 year-old woman with the same bone density speaks to changes in bone quality (Kolata, 2003).

Pregnancy-associated osteoporosis is a rare and temporary condition that occurs during the 3rd trimester or postpartum period of a first pregnancy. Symptoms include back pain, loss of height, and vertebral fractures. Lactation is also associated with transient bone loss, with recovery of full bone density within 6 months (National Women’s Health Information Center, 2003).

In the United States, using the same criteria of BMD of the hip, prevalence of osteoporosis ranges from 3.9% of Caucasian-American women 50–59 years, to 47.5% for those older than 80 years (World Health Organization [WHO], 2003b). The National Osteoporosis Foundation (NOF, 2002) estimates that 55% of all Americans aged 50 years and older in the year 2002, nearly 44 million people, had either osteoporosis or low bone mass. Based on the 2000 Census, prevalence estimates increase to 52 million women and men for the year 2010, and to 61 million in 2020. Prevalence varies by gender, race, and ethnic group. Both men and women experience a decline in BMD starting in midlife, with women experiencing more rapid bone loss in the immediate years after menopause. Of the 44 million Americans estimated to have osteoporosis and low bone mass in the year 2002, 32% (14 million) of them were men and 68% (30 million) were women (NOF). “These estimates challenge the long-held myth that osteoporosis is a sex-segregated problem” (Wolf, Penrod, & Cauley, 2000, p. 7). Asian and white non-Hispanic women have the lowest bone mineral densities throughout life, and African-American women have the highest. Mexican-American women have bone densities that are intermediate between the two groups. Japanese and Native-American women (limited data) have peak BMD that are lower than white non-Hispanic women (NIH, 2000).

Osteoporosis may be viewed as a silent systemic disease or as a progressive risk factor for fractures. Several factors associated with low bone density and/or risk for fractures have been identified by large prospective studies, including the 35-state National Osteoporosis Risk Assessment (NORA) (Siris et al., 2001). These risk factors are classified as either primary or secondary (Field-Munves, 2000; NIH, 2000; NOF, 2002). Primary causes include:

- Female gender
- Advancing age
- White or Caucasian and Asian races
- Estrogen deficiency as a result of menopause, especially early or surgically induced. This may also be categorized as secondary.
- Low weight and body mass index, having a small frame
- Personal history of fracture after age 50 years
- Family history of osteoporosis
- History of fracture in a first-degree relative
- Cigarette smoking
- Low lifetime calcium and Vitamin D intake
- An inactive lifestyle.

Sometimes listed as a contributing factor, lack of sun exposure, especially in many older adults and during the winter months in higher latitudes, significantly reduces cutaneous production of Vitamin D essential for calcium absorption (Feskanich, Willett, & Colditz, 2003). Other suspected predictors of low bone mass, such as use of alcohol and caffeine-containing beverages, have been proven to be inconsistent in their association (NIH,
In fact, the NORA study of 200,160 postmenopausal women aged 50 years or older found that alcohol consumption significantly decreased the likelihood of osteoporosis (Siris et al., 2001). Other data from this large diverse population found that higher body mass index, African-American heritage, estrogen use, diuretic use, and exercise are BMD protective factors, while age, personal or family history of fracture, Asian or Hispanic heritage, smoking, and cortisone use were significant predictors of osteoporosis. Many diseases and drug therapies are also associated with osteoporosis and increased fracture risk (Field-Munves, 2000; NIH). A comprehensive list is outlined in the National Osteoporosis Foundation Physician’s Guide to Prevention and Treatment of Osteoporosis (NOF, 2003).

Osteoporosis causes skeletal changes resulting in chronic morbidity and mortality. It has profound physical, financial and psychosocial consequences for the individual, family, and community (Gueldner, 2000; NIH, 2000). Changes in bone mass or quality, however, occur without symptoms, and are usually not detected until a fracture occurs. Fractures of the proximal femur (hip), vertebrae (spine), and distal forearm (wrist) are the most clinically apparent complications of osteoporosis, and profoundly affect quality of life (Delmas & Fraser, 1999; NIH; NOF, 2003; Wolf, Penrod, & Cauley, 2000). Bone loss associated with the aforementioned risk factors and age-related changes, such as a decrease in proprioception and balance, leads to an increased risk of fracture.

The risk of fracture rises when BMD declines. The use of BMD, therefore, to identify those at risk for fractures is analogous to the use of blood pressure monitoring to identify those at risk for stroke (Wolf et al., 2000). The estimated lifetime risk for wrist, hip, and vertebral fractures is 15%, similar to that for ischemic heart disease (Brundtland, 2000). The majority of these fractures in persons over 50 years of age result from osteoporosis, but attempts to classify fractures have been less than ideal. Use of the hip fracture rate to calculate the osteoporosis fracture burden is promising (WHO, 2003).

Worldwide, the incidence of hip fractures was estimated to be 1.66 million in 1990 (WHO, 2003). Increasing exponentially with age, virtually all occur in persons aged 35 years and older, with 80% of these occurring in women. The highest incidence rates are reported from northern Europe, the northern part of the United States, and among South-East Asian populations, and the lowest are from African countries. The rates, however, differ within racial groups, for example, “rates vary by a factor of about 10 between Sweden and Turkey” (WHO, p. 31). The differences in incidence of hip fractures between countries are greater than those between genders.

Hip fractures are associated with lengthy hospital admissions, difficulty in activities of daily life, nursing home placement, death, and the corresponding economic burden. There is an increase in mortality of 10% to 20% within 1 year of fracture; 30% of fracture patients will fracture the opposite hip; up to 25% require long-term nursing home care; 40% have full recovery to prefraction walking status (NOF, 2003). Mortality is related to comorbid diseases, such as stroke or chronic lung disorders, and to complications arising from immobility and/or treatment of the fracture (Wolf et al., 2000).

Vertebral fractures, often called crushing fractures, result in the characteristic physical changes often associated with osteoporosis, most notably kyphosis or dowager’s hump. This collapsing of the vertebral column onto itself impacts other body systems: gastrointestinal, respiratory, genitourinary, and craniofacial, and produces concomitant morbidity: height loss, abdominal protuberance and fullness, inhibited breathing patterns, back pain, back disability, and functional limitations in walking, bending, and reaching (Gueldner, 2000; NIH, 2000; NOF, 2003; Wolf et al., 2000).

The psychosocial ramifications of osteoporosis, though many, are often underaddressed when considering the sequelae of this disorder. Fear, anxiety, anger, depression,
Outcome Measures

Outcomes of nursing and health care encompass changes in both client variables and organizational variables as a consequence of...
specific processes. Examples of client outcomes include satisfaction and preferences, disease- or problem-specific indicators, functional status, and quality of life. Examples of organizational outcomes include internal customer satisfaction (i.e., nurse or physician satisfaction), personnel safety (i.e., injuries from needles and other “sharps”), and cost-effectiveness. Client-focused variables that cross multiple diseases and conditions, such as mortality, nosocomial infections, falls, skin integrity, and medication errors, have been reported as both client and organizational outcomes.

The national thrust toward outcomes management and research emanates from studies of medical practice variation, which became a priority research agenda in the 1980s. Outcomes management is an ongoing, research-based quest to meet specified quality goals. Outcomes research seeks to determine whether specific interventions or practice models are beneficial in naturalistic environments. It is aimed at broad-based populations and includes service settings other than academic medical centers or large urban environments. In addition to randomized clinical trials, investigators attempt to link information about client outcomes with large administrative and clinical databases. Given an impetus to improve the outcomes of nursing care, investigators must solve various puzzles around appropriate target populations, the right outcome variables, and the associated process and structure variables.

Outcome measures incorporate intermediate clinical variables, such as blood pressure, as well as more extended outcomes, such as return to work. Researchers and managers are challenged to select or design outcome measures and establish their reliability and validity by issues related to sensitivity, specificity, situational contaminants such as severity of illness, and response set and other biases. Variations in definitions, formulas, and data collection procedures frustrate between-group comparisons, particularly for researchers who work with the large databases available from government agencies and organizations within the health care industry. Contextual factors influence client outcomes, including organization ownership (public/private, profit/not for profit), involvement in teaching, case mix, volume of patients treated, organization size, and the extent to which the organization engages in high-tech procedures. Still to be determined is the impact on client outcomes of the integration of health care providers into complex networks.

Projects to develop standardized measures abound. For example, John Ware Jr. and colleagues (Medical Outcomes Trust, 1993) published the SF-36 Health Survey, which investigators are using with increasing frequency to assess health status and quality of life from the client’s point of view. The SF-36 measures eight concepts: (a) limitations in physical activities because of health problems, (b) limitations in social activities because of physical or emotional problems, (c) limitations in usual role activities because of physical health problems, (d) psychological stress and well-being, (e) limitations in usual role activities because of emotional problems, (f) bodily pain, (g) vitality, and (h) general health perceptions.

Prominent among efforts to standardize measures for outcomes research is the ongoing project conducted by McCloskey and Bulechek (1996), M. Johnson and Maas (1997), and their colleagues at the University of Iowa College of Nursing to develop and maintain taxonomies of nursing interventions and outcomes. In a different arena, the Joint Commission on Accreditation of Healthcare Organizations (1997) has initiated a program that will require organizations seeking accreditation to report patient outcomes. Under that program, Oryx Outcomes: The Next Evolution in Accreditation, hospitals choose two clinical performance indicators for reporting from among 60 measurement systems; the selected outcomes must relate to at least 20% of the hospital’s patient population. The Agency for Health Care Policy and Research (AHCPR) and the president and fellows of Harvard College have released a computerized compendium of approximately 1,200 clinical performance measures developed by public and private sector organizations.

Roma Lee Taunton
Pain

Pain is “an unpleasant sensory and emotional experience associated with actual or potential damage or described in terms of such damage; pain is always subjective” (International Association for the Study of Pain, 1979, p. 250). People in pain not only suffer considerably but are at risk for long-term adverse effects. Pain is a common component of illness and is the most common reason that people seek medical attention. People experience pain in different ways and only those who have the pain know what it is really like. Communication of that pain to caregivers is dependent on the verbal abilities of the patient, with those who are very young and those who are cognitively impaired being at risk for misunderstanding of its effects.

Pain generally is classified into two types: acute and chronic. However, there are many different types and causes of pain. There is acute pain following surgery and injury, and during labor, sickle cell crisis, and health care procedures. Chronic pain can occur in the musculo-skeletal system, the gastrointestinal system, and the urinary system, and can be recurrent or constant. Cancer pain is from the enlarging tumor, its metastases, or its treatment and is often chronic, increases in intensity and extent; also acute pain can break through the usual pain. Some types of pain are classified by the context in which they occur. These include pain in infants, the critically ill, the cognitively impaired, and at the end of life. Acute pain subsides as healing takes place. Acute pain has a predictable end and is of brief duration, usually less than 3 months. Chronic pain is said to be that which lasts for longer.

The undertreatment of pain has been well documented for at least the past 30 years (Marks & Sachar, 1973). Barriers to the effective treatment of pain include clinicians’ lack of knowledge of pain management principles, clinician and patient attitudes toward pain and drugs, and overly restrictive laws and regulations regarding use of controlled substances. The undermanagement of pain has been particularly pronounced in children, the elderly, and those who cannot speak. Pain relief in palliative care and at the end of life is receiving increased attention in research and practice.

The gate control theory published by Melzack and Wall (1965) provided a theoretical basis for showing how pain, transmitted peripherally to the brain, can be influenced by cognitive and affective as well as physiological factors. Theories of pain have evolved in recent years to the idea of a mind-body unity that Melzack (1996) calls a neuromatrix. An active brain is part of a whole person who has been shaped by genetics and learning to respond to noxious stimuli in individually characteristic patterns. Recent studies of the role of genetics, endorphins, and immune factors, imaging studies of the thalamus, the anterior cingulate, the limbic system, and the cortex, support a holistic theory that goes beyond the mechanics of transmission of noxious messages. An appreciation of the mind-body experience of pain provides a basis for multidisciplinary research and practice, multicultural responses, and multimodal strategies for managing pain.
Within the neuromatrix of a whole and active person, tissue damage causes the release of pain-producing substances, such as serotonin, histamine, bradykinin and substance P, which stimulate nerve endings called nociceptors. Action potentials travel along the peripheral nervous system, are modified in the dorsal horn of the spinal cord, and travel to the brain where sensory, affective, and cognitive responses occur. Nerve fibers descending from the brain to the dorsal horn can inhibit the perception of pain. Opiate receptors in the brain or spinal cord react both to opiates that are externally administered and to enkephalins and endorphins produced by one’s own body to modulate pain.

Pain management includes pharmacological, cognitive-behavioral, physical, radiation, anesthetic, neurosurgical, and surgical techniques. Analgesics administered orally or intravenously are needed for moderate to severe pain, and cognitive-behavioral techniques such as relaxation, music, and distraction can increase the relief. More complex pain, such as that experienced by patients with reflex sympathetic dystrophy or by cancer patients who have unrelieved pain from several origins as well as neurogenic and breakthrough pain, may require evaluation and treatment by a multispecialty pain management team. The successful management of pain generally depends on a careful assessment of the pain, patient education for pain management, appropriate pharmacological and nonpharmacological intervention, reassessment to determine the effectiveness of interventions used, and re-intervention until satisfactory relief is obtained (Good, 2003).

Pharmacological management of pain usually is treated by three types of drug: (a) aspirin, acetaminophen, and nonsteroidal anti-inflammatory drugs (NSAIDS); (b) opioids; and (c) adjuvant analgesics. NSAIDS decrease the levels of inflammatory mediators generated at the site of tissue injury, thus blocking painful stimuli. They are useful in the management of mild pain and may be used in combination with opioids for moderate to severe pain. Opioids are morphine-like compounds that produce pain relief by binding to opiate receptors. They are used with moderate and severe pain and can be administered orally, subcutaneously, intramuscularly, intravenously, rectally, transdermally, epidurally, nasally, intraspinally, and intraventricularly. Patient-controlled analgesia (PCA) can be accomplished by mouth or by use of equipment set to prescribed parameters to administer a drug intravenously, subcutaneously, or epidurally. Adjuvant drugs are used to increase the analgesic efficacy of opioids, to treat other symptoms that exacerbate pain, or to provide analgesia for specific types of pain.

Physical modalities for pain management include use of heat and cold, counterstimulation such as transcutaneous electrical nerve stimulation (TENS), and acupuncture. Cognitive techniques are focused on perception and thought and are designed to influence interpretation of events and bodily sensations. Providing information about pain and cognitive-behavioral techniques such as relaxation, music, and distraction can increase the relief. More complex pain, such as that experienced by patients with reflex sympathetic dystrophy or by cancer patients who have unrelieved pain from several origins as well as neurogenic and breakthrough pain, may require evaluation and treatment by a multispecialty pain management team. The successful management of pain generally depends on a careful assessment of the pain, patient education for pain management, appropriate pharmacological and nonpharmacological intervention, reassessment to determine the effectiveness of interventions used, and re-intervention until satisfactory relief is obtained (Good, 2003).

When the use of drugs, with or without physical and cognitive behavioral modalities, is not adequate to manage pain, other management techniques may be used. These depend on the cause of the pain and may be temporary or permanent. Radiation therapy is used to relieve metastatic pain and symptoms from local extension of primary disease. Nerve blocks include the injection of a local anesthetic into a spinal space and peripheral nerve destruction. Surgical procedures are used to remove sources of pain, such as debulking a tumor that is pressing on abdominal organs or removing bone spurs that are compressing nerves. Neuroablation techniques include peripheral neurectomy, dorsal rhizotomy, cordotomy, commissural myelotomy, and hypophysectomy.
In recent years, various agencies and organizations have published guidelines for the management of pain. These have included guidelines published by the Agency for Health Care Policy and Research on the management of acute pain, cancer pain, and low-back problems. In addition there are three books from the American Pain Society (APS): on analgesic use, guidelines for pain in arthritis, and pain in sickle-cell disease. In the near future APS will publish two new guidelines for cancer pain and for fibromyalgia. The Joint Commission for Accreditation of Healthcare Agencies has included policies and procedures for pain management in their standards. Pain relief is a patient’s right, but there is greater consensus regarding management of acute and cancer pain than for chronic nonmalignant pain.

**Marion Good**

**Ada Jacox**

**Pain Management: A Mid-Range Theory**

The theory of a balance between analgesia and side effects proposes that multimodal therapy, attentive care, and patient education contribute to a balance between pain relief and minimal side effects of analgesic medication (Good, 1998, 2004; Good & Moore, 1996). Multimodal therapy consists of a combination of strong analgesics and pharmacological adjuvants (e.g., nonsteroidal antiinflammatory drugs) plus nonpharmacological adjuvants (e.g., relaxation, music, guided imagery). Attentive care means vigilance and consists of regular assessment of pain and side effects, plus identification of inadequate relief, intervention, reassessment, and reintervention. Patient education consists of patient teaching for pain management and mutual goal-setting between the nurse and patient. The three principles are proposed to result in more relief and less side effects than simply giving analgesic medication (Good, 1996, 1998, 2004). The theory is based on the premise that a balance between analgesia and its side effects is the desired goal in acute pain. It is a new conceptualization of acute pain management compared to the previous notion of only giving analgesics (Moore, S. M., 2004).

The theory of a balance between analgesia and side effects is the first integrated, prescriptive nursing theory for acute pain management in adults. Middle-range nursing theories are more useful in practice and research if they have empirical support. Useful sources of mid-range theories are clinical practice guidelines that are based on research and consensus of interdisciplinary experts. Such guidelines can provide a jump-start for empirically based theories and a body of scientific knowledge for practicing nurses. The resulting knowledge then can be taught, used, and developed further. The acute pain management guidelines published by the Agency for Health Care Policy and Research (Acute Pain Management Guideline Panel, 1992) were the source that Good and Moore (1996) used to develop a mid-range pain management theory.

Although analgesic medication is the mainstay of pain therapy after surgery, especially at first, there are large differences in individual response to pain and analgesics. In addition, there may be a mind-body effect from relaxation and soft music. These nonpharmacological modalities have been found to reduce the pain further. Good and colleagues (1999) found that they reduced pain up to 31% more than patient-controlled opioids alone at ambulation and rest. The findings supported the integrated mid-range intervention theory.

The assumptions of the theory are practical. First, the nurse and physician must have current knowledge of pain management and collaborate to achieve relief. Second, the theory is expected to be applied with acute pain in situations in which systemic opioid analgesics or epidural anesthesia are prescribed and medication for side effects is administered as needed. Third, it is applicable to adults who have the ability to learn, set goals, and communicate symptoms (Good, 1998, 2004; Good & Moore, 1996).

This theory has not directly been applied to labor pain, cognitively impaired adults, or
patients with special problems such as opioid tolerance, shock, trauma, or burns. However, other theories can be developed from the acute pain management guidelines or from other practice guidelines. For example, Huth and Moore (1998) published an integrated prescriptive theory of acute pain management for infants and children which has been supported by research (Huth, Broome, & Good, 2004). Ruland and Moore (1998) published a mid-range theory of the peaceful end of life based on existing standards of care.

Articles about this theory contain examples of testable research concepts and hypotheses that can be deduced from it. In addition, this literature contains hypothetical cases that ground the theory in reality and illustrate its use with surgical patients and in clinical research (Good, 1998, 2004). It has been republished in part in a textbook of theory development (McEwen, 2002), and practicing nurses taking graduate courses ask about its usefulness for research and practice.

When the theory was created, it was based on empirical support for two of its three propositions and on a consensus of experts for the third one about patient teaching and goal setting (Acute Pain Management Guideline Panel, 1992; Good & Moore, 1996). Since then, there have been research findings that support the effect of nonpharmacological therapies in providing additional pain relief when used with analgesics after surgery (Good & Chin, 1998; Good et al., 2001; Good et al., 1999; Roykulcharoen & Good, in press). These studies took place in the U.S., Taiwan, and Thailand. The largest was a randomized controlled trial of 500 abdominal surgical patients in the U.S., which demonstrated that jaw relaxation, music, and the combination of both had a small to medium effect size compared to analgesics alone. Supported by the National Institute of Nursing Research (NINR), the interventions were effective on postoperative days 1 and 2 and at ambulation and rest (Good et al., 1999). The same music as used in the U.S. study had large effects after gynecological surgery in Kaoshiung, Taiwan (Good & Chin). A test of a longer, whole-body relaxation technique resulted in a large effect size in postoperative abdominal surgical patients in Bangkok, Thailand (Roykulcharoen & Good). A current randomized controlled trial, funded by NINR, is underway to study the effects of nonpharmacological interventions on side effects of opioids after surgery and also the effects of patient teaching for pain management (Good, Anderson, Albert, & Wotman, 2001–2005).

Critical reviews of this theory have noted the clear theoretical and operational definitions given and the clarity and consistency in the use of concepts and prescriptive propositions, making it easy to test in randomized controlled trials (Moore, S. M., 2004; Suppe, 1996). The theory presents a comprehensive approach to clinical management of acute pain, yet with only three propositions it is fairly parsimonious, which is important when teaching it to others. It is reality based, as is evident in the assumptions, concept names, and principles; they are in terms that practicing nurses can easily understand and use. The criteria for a theory in the middle range are met. It is narrow in scope because it is limited to acute pain. It is appropriate for testing because hypotheses can be deduced. Nevertheless it is abstract enough to be useful in practice (Moore, S. M.).

Pain management is important to quality of life. Surgical events are critical stressors in people’s lives—a few days when nursing interventions are key factors in preventing ongoing pain and in patients’ satisfaction and memory of the event. Pain is a complex phenomenon because human response to pain varies greatly. Pain management is central to good nursing care and relief calls for continual growth of prescriptive knowledge for practitioners. Mid-range theories that clearly and parsimoniously describe this knowledge for nurses can help meet this basic human need in our society. Although more research on the theory is needed and encouraged, what is known thus far can be used to educate the next generation of nurses on management of acute pain.

 Marion Good
 Shirley M. Moore
Parental Response to the Birth and Hospitalization of a High Risk Infant

Recognizing that parents play an important role in the lives of their infants, nurses have long been concerned about the needs of parents of high-risk infants, that is, preterm and term infants with serious health problems who are hospitalized in neonatal intensive care units (NICUs). The recent thrust on family-centered care in the NICU is a direct result of these concerns about parental needs. Thus, a major focus of research in maternal-child nursing has been on parents of preterm infants hospitalized in an NICU, with a few studies also focusing on parents of term infants with serious health problems. Over the past 2 decades, much of nursing research in this area has focused on two broad areas: (a) describing the sources of stress experienced by parents and identifying factors related to this stress, and (b) examining the emotional responses of parents. Research in this area reflects the works of nurses across the world.

Identification of the stressors experienced by parents related to the hospitalization of their infant in an NICU was greatly facilitated by the development of the Parental Stressor Scale: Neonatal Intensive Care Unit (PSS: NICU) (Miles, Funk, & Carlson, 1993). Worldwide research has been conducted using this scale. In general the findings indicate that aspects of the parental role, such as not being able to protect the baby, feeling helpless, separation, and the appearance and behavior of the sick infant, such as seeing the child experiencing pain or apnea, seeing needles and tubes put into the child, and watching the respirator breath for the child, cause the most distress (Miles, Funk, & Kasper, 1992; Miles & Holditch-Davis, 1997; Shields-Poe & Pinelli, 1997). Limited focus has been placed on parents’ perception of their relationship with nursing and medical staff, particularly related to life-and-death decisions, and to the interplay between the nurses and parents as they each assume responsibility for the sick infant.

The emotional distress of parents that results from having a sick infant hospitalized in an NICU has been another direction of research. Studies have focused primarily on depression, anxiety, and general psychological adjustment (Doering, Moser, & Dracup, 2000; Meyer et al., 1993; Miles et al., 1992; Miles, Holditch-Davis, Burchinal, & Nelson, 1999; Shields-Poe & Pinelli, 1997). It has been hypothesized that mothers’ responses are similar to those reported for posttraumatic stress (Holditch-Davis, Bartlett, Blickman, & Miles, 2003). While most of this research has focused on negative outcomes, there is a beginning focus on positive outcomes and growth (Miles et al., 1999).

In general, this research suggested that parents of preterm and seriously ill infants experience stress during hospitalization and have intense emotional responses, particularly anxiety and depressive symptoms. Several studies have reported that mothers reported more stress than fathers (Doering et al., 1999; Meyer et al., 1993; Miles et al., 1992; Shields-Poe & Pinelli, 1997). However, most of these studies use small convenience samples of mostly Caucasian, married fathers. More research is needed regarding the experience and needs of single and married fathers and fathers from diverse ethnic backgrounds. Also important is understanding the father’s contribution to maternal mental health and parenting and to infant outcomes.

Most of the studies have used quantitative descriptive studies with limited use of conceptual frameworks to explore factors related to parental distress (Miles & Holditch-Davis, 1997). A handful of studies have found that parent and family characteristics and characteristics of the infant’s illness are related to stress and emotional distress (Doering et al., 2000; Miles et al., 1999; Shields-Poe & Pinelli, 1997). Few longitudinal studies have been conducted, leaving the findings inconclusive regarding the long-term implications of this distress (Miles & Holditch-Davis). As preterm infants often experience long hospitalizations and the assumption and attainment of the parental role with newborn infants is known to be a process that occurs
Parenting 441

over time, it is essential that we study parental responses over time to really understand the process and outcomes of this experience. Likewise, we need to link parents and the infants conceptually or methodologically in the design of these studies in order to understand how parental emotional distress and other responses influence parenting behaviors in the critical care period and parenting and the parent-child relationship during childhood. While there is another body of literature related to parent-infant interaction within the NICU, this research is rarely linked to parental emotional responses (Holditch-Davis & Miles, 1997). There are only a limited number of studies using methods of qualitative design that could add more depth to our understanding of parental experiences.

Given the amount of descriptive research on parental stress in the NICU, few researchers have developed and tested interventions aimed at reducing the distress of parents and enhancing their parental role with their infant. Melnyk and colleagues (Melnyk, B. M., et al., 2001) tested a parent-empowerment intervention and reported positive outcomes for low-birthweight infants and their mothers, who reported less stress related to the NICU environment and a better understanding of their preterm infants’ behavior.

Future research should be more firmly grounded in developmentally sensitive ecological conceptual models that explore personal and illness-related factors that affect parental responses and link parental responses to parenting and child outcomes. Methods of qualitative and quantitative research should be used and even combined to gain a fuller picture of parental experiences. Longitudinal and repeated measures designs are essential. Research on emotional distress and mental health of parents should include both problematic responses and growth outcomes. Of utmost importance is the need to examine how parents from different ethnic groups respond to birth and hospitalization of a high-risk infant.

In conclusion, nurse researchers internationally have made important contributions to the study of parental responses to birth and hospitalization of a preterm or seriously ill infant. This research has undoubtedly influenced nursing interventions with parents. NICUs generally have open visiting hours, recognize the important role of parents, and work hard to facilitate the development of the parental role even while the infant is critically ill.

MARGARET SHANDOR MILES

Parenting

Parenting is a process that involves a complex set of responsibilities, including being present for the child; caregiving, teaching, protecting, and encouraging the child; and advocating on behalf of the child. These responsibilities evolve over time as the child and parent mature and change in response to environmental contexts and any special needs of the child.

Parenting is a major focus of nursing research. Currently three nursing diagnoses relate to parenting: altered parenting, parental role conflict, and altered parent-infant attachment (Sparks, 1995). The diagnosis of altered parenting involves at-risk or problematic parenting. Parental role conflict involves the changes in parenting that occur when a child is ill, such as providing illness-related care, comforting the child, and stimulating the child’s growth and development. Altered parent-infant attachment is an interference with the development of appropriate parental relationship.

An identifiable group of nurse researchers who study parents and parenting has emerged (Beeber & Miles, 2003; Faux, 1998; Holditch-Davis & Miles, 1997; Hoyer, 1998; McBride & Shore, 2001; Mercer, 1995; Miles, 2003). Like parenting researchers from other disciplines, nurse researchers agree that parenting plays a critical role in child development. However, the other side of parenting—its effects on the lives of adults—has received relatively little attention (McBride & Shore). The substantive focus of nursing research on parenting includes parenting during the transition to parenthood,
parenting of high-risk infants, parental responses to children's acute and chronic illnesses, parenting of healthy children, and problematic parenting.

Parenting during the transition to parenthood has probably received the most attention from nurse researchers (Mercer, 1995). Areas of research include maternal identity and competence, adjustments to parenting a newborn, parent-infant interactions, and the effects of stressors such as older maternal age, infertility, or a high-risk pregnancy. Fathers are beginning to be studied. Researchers also have studied the development of the parental identity during pregnancy, maternal-fetal attachment, and the emotional tasks of pregnancy.

A related area of research focuses on parenting high-risk infants, including infants who are premature, technologically dependent, prenatally exposed to substances, multiple births, or temperamentally difficult. A number of descriptive studies has explored the emotional distress and sources of stress of parents during the infant's neonatal intensive care hospitalization (Holditch-Davis & Miles, 1997). Of particular concern is the impact of parental distress and parent-infant separation on subsequent parent-child interactions and attachment. Parental influences on development of high-risk infants have also been identified through longitudinal studies. Recently, nurse researchers have tested a number of intervention studies for this population, including support programs in the intensive care unit and home visiting programs (Kearney, York, & Deatrick, 2000).

Another focus of nursing research has been on parents of ill children. Although much of this research has been focused on the family, parents are the most important element of family responses (Faux, 1998). Studies of parents of children with chronic illnesses or developmental disabilities have focused on the impact of children's diagnosis, stressors associated with treatments and repeated hospitalizations, and parental management of the illness (Miles, 2003). Similarly, researchers have focused on the experiences of parents of acutely ill children, exploring parental emotional responses, participation in care, and stress during hospitalization (Youngblut, 1998). Recently, a few studies have moved beyond physical illnesses and have begun to explore the effect of child psychiatric conditions, such as attention deficit disorder, conduct disorder, and schizophrenia, on parenting. A small but important body of descriptive research about parents' relationships with nurses and other health care providers demonstrates the powerful role nurses have in affecting parental responses and maintaining the parental role, especially during acute illnesses.

Studies of parents of ill children have largely been limited to descriptive, cross-sectional studies done with small convenience samples from one institution. Very few are longitudinal even within the period of hospitalization. More research is needed to explore the nature of the interaction of health care providers and parents and how to strengthen those interactions. More research on the influence of parenting on health and developmental outcomes in ill children is also needed.

Nurse researchers have also studied parenting of normal, healthy children. Preschool children have been studied the most, with less attention to parenting the school-aged, adolescent, and young adult child. Much of this research has looked at parental perceptions of the child or parental effects on child outcomes, such as obesity or substance abuse, rather than parenting per se. However, discipline as an aspect of parenting has received attention. This research has examined the effects of maternal employment, supports for parenting, and issues involved in parenting by grandparents, parenting after divorce, parenting during maternal chronic illness, or parenting after the death of a spouse. In addition, nurse researchers have begun to study ethnic differences in parenting.

Problematic parenting has been another focus of nursing research. Studies have examined the impact of maternal mental health problems or substance abuse on parenting and parents who are abusive to their children. Another important aspect of problematic parenting has focused on parenting by low-
income parents (Beeber & Miles, 2003), but the area receiving the most attention from nurse researchers has been adolescent parenting (Hoyer, 1998). Although a number of intervention studies has been conducted to improve parenting in these at-risk groups (Kearney et al., 2000), many of the interventions were atheoretical. More theoretically based intervention studies aimed at improving parenting and removing situational or environmental obstacles to positive parenting are needed.

The theoretical models used as frameworks for nursing research on parenting have been as diverse as the substantive foci. Researchers interested in the transition to parenthood often build on the concepts put forth by Rubin based on role-attainment theory from sociology and adapted by Ramona Mercer and Lorraine Walker. Another commonly used framework is ecological-systems theory, influenced by the work of Uri Bronfenbrenner, Jay Belsky, and Arnold Sameroff, and based in psychology. Within nursing, Kathryn Barnard’s theory follows in this tradition.

Other theories used in parenting research by nurses include attachment, cognitive, and stress theories. Attachment theory has its origins in ethology and is influenced by the work of John Bowlby and Mary Ainsworth. This framework is widely used in infancy and preschool parenting research. Cognitively based theories of parenting, such as that developed by Karen Pridham, are used in studies of mothering during the prenatal and postpartal periods. Finally, stress models, influenced by Richard Lazarus and Hans Selye, have been used in studies of the impact of acute illness on parents.

Despite this theoretical diversity, much of the nursing research conducted in the area of parenting remains atheoretical and highly descriptive. Therefore, the findings in this area of research are generally fragmented, and often nurse researchers are not building a coherent science on parenting. The major gaps in the parenting literature in nursing include a need for more information about fathering and about parenting of adolescents and young adults. There is also a need for research that examines parenting from a cultural perspective. Nursing researchers need to go beyond comparing ethnic groups and move toward understanding what is effective and adaptive for parents from varying ethnic backgrounds. Likewise, nurse researchers need to conduct more longitudinal studies that study parenting as a process that unfolds over time.

DIANE HOLDITCH-DAVIS
MARGARET SHANDOR MILES

Parkinson’s Disease

Parkinson’s Disease (PD) is a progressive, degenerative neurological disorder that manifests severe physical symptoms and also brings emotional issues to the surface. PD is not a new illness; as far back as 1817 an article was written by James Parkinson in which he described a “shaking palsy.” The cause, which was a mystery then, remains one today. The symptoms of PD result from a significant degeneration of the neurotransmitter dopamine located in the substantia nigra of the brain. Dopamine is responsible for maintaining the normal function of the extrapyramidal motor system, including control of posture, support, and voluntary motion. The symptoms of PD may vary greatly from individual to individual. However, the “classic” triad of symptoms includes: tremor, rigidity, and bradykinesia. Patients may complain of hand tremors as their first symptom. As the disease progresses, patients become rigid as their muscles lose the ability to relax. The third symptom many people complain about is related to the slowing of movement. Patients can describe feeling “frozen” and they become stuck in one place. It may take them up to several minutes to begin moving again. Due to the degenerative nature of the disease, many patients begin with mild symptoms and over time become significantly debilitated. Pharmacological therapy is the mainstay in treatment for PD. There are several well-known medications in use, the most common being Carbidopa/Levodopa (Sine-
Sinemet is effective in treating PD by allowing more dopamine to be available for use in the brain. Unfortunately, over time, this and many of the other drugs become less effective, causing a return of symptoms.

Nurses can be pivotal forces in helping patients live with PD. C. Hayes (2002) identified important issues for people living with PD. Her research focused on seven key areas: Anatomy and Physiology/Medical Aspects, Activities of Daily Living, Lifestyle, Mobility, Psychological Issues, Medication, and Advice. The three most important issues identified in the study were available treatments, maintaining independence, and the effects of PD on the brain (Hayes).

Due to the debilitating nature of PD, many spouses often find themselves assuming the caregiver role. Many times relationships drastically change as people assume new roles. Caregiving can be a 24-hour responsibility, and the needs of caregivers as well as the needs of patients must be addressed. Edwards and Scheetz (2002) explored the factors that contribute to the perceived burden of caregivers of PD patients. This study supported the hypothesis that caregivers are affected when their spouse/significant other is diagnosed with PD, and their needs must also be addressed when formulating a plan of care. It was suggested that the nurse prepare and support the family for the progression of the disease. The nurse should assume the role of counselor, educator, and supporter. Nurses should recognize that caregivers have varying abilities, and support groups can be an indispensable avenue for venting feelings and emotions (Edwards & Ruettiger, 2002).

Future research in PD will continue to explore the causes and treatments of this disease. Nursing research will continue to investigate ways in which patients with this disease and their caregivers can obtain the most appropriate treatment, while maintaining the highest possible level of function and quality of life. Lifestyle alterations as well as medications are necessary when treating Parkinson’s disease, and the physical as well as emotional needs of patients must remain a top priority in research surrounding this disease.

**Andrea Calaluce**

**Parse’s Theory of Nursing: Human Becoming Theory**

Human becoming theory (Parse, 1992, 1995) was first entitled *Man-Living-Health: A theory of nursing* (Parse, 1981). In 1998, Parse published *The Human Becoming School of Thought: A Perspective for Nurses and Other Health Professionals* (HBST), a welcome second edition of her original work. This new book gives clear, undated explanations of the model, reflecting and elaborating on the research and practice methodologies that were developed after the publication of the first edition. Parse’s theory evolved from concern about the use of the medical model applied to the nursing discipline. She was dissatisfied with the mechanistic view of human beings and its lack of congruence with the focus and goals of nursing. The human becoming theory describes a theory of nursing that views the mysteries and uniqueness of humans as unitary beings in mutual process with a multidimensional universe.

Parse (1998) draws from Roger’s Science of Unitary Human Beings and the writings on existential phenomenology when she defines the person as being in a process of continuous becoming within the HBST. Humans are described as unitary living beings who are a unity and have more than the sum of their parts. Each person cocreates reality in mutual process with the environment. Quality of life is a central concept within the HBST. According to Parse, any individual capable of the experiences of a living person has a quality of life. She further clarifies that quality of life is subjective and that the nurse should accept quality of life as the patient sees it regardless of the nurse’s objective assessment of the patient’s quality of life. The goal of nursing is quality of life in Parse’s theory.
(Parse) thus demonstrating the importance of this concept with the theory.

Within the HBST Parse states that human’s health is becoming and is a way of living. She clarifies this by stating that health is nonlinear and therefore one cannot have degrees of health. According to this definition it appears that all one needs to have health is the ability to lead a human life. Human Becoming Theory is guided by nine philosophical assumptions about human beings and becoming that were synthesized from Rogers’ Science of Unitary Human Beings and the writings on existential phenomenology. Becoming is “the human’s patterns of relating value priorities” (Parse, 1998, p. 20). It is the way one leads one’s life. The choices an individual makes identify not only that individual’s value priorities but also the type of person he identifies himself as being.

Three principles about human becoming constitute the theoretical structure. Principle 1 states, “structuring meaning multidimensionally is cocreating reality through the languaging of valuing and imaging” (Parse, 1998, p. 35). The major conceptual processes of this principle are imagining, valuing, and languaging (Parse). Principle 2 is that “co-creating rhythmical patterns of relating is living the paradoxical unity of revealing-concealing, enabling-limiting, and connecting-separating” (Parse, p. 42). Principle 3 states, “cotranscending with the possibles is powering unique ways of originating in the process of transforming” (Parse, p. 46). The key conceptual processes for this principle are powering, originating, and transforming (Parse). Parse identifies two types of research within the HBST, basic and applied (Parse, p. 61). Basic research is research that explores the lived experience and human becoming, while applied research evaluates HBST and its application in nursing practice. The basic research focuses on the individual’s life experiences. Parse has developed a specific research methodology based on phenomenological hermeneutic methods. It is a qualitative method that focuses on universal human experiences described by research partici-
ing in which pattern-seeing-see-changing-all-at-once shifts understanding in the never-ending journey of coming-to-know. Nurse educators have incorporated the teaching-learning processes into student’s experiences through development of a reflective journaling process to enhance the normally expected journaling experience (Letcher & Yancey, 2004). The teaching-learning processes used by Letcher and Yancer included living with ambiguity, appreciating the mystery, honoring the wisdom, inventing the possibles, and witnessing the unfolding. Through reflective journaling the students explored the meaning of their teaching-learning experience. An outgrowth of this work was the development of an interactive distance learning experience between two groups of students at different schools of nursing so that they could explore the meaning of this experience with others. Recommendations for future work include linking groups of students earlier in their nursing program and development of distance strategies for such linkage (Letcher & Yancey). The human becoming teaching-learning model provides new approaches to journaling and networking with students while enriching the nursing experience from a theoretical perspective.

Bunkers (2002) has developed a theoretical perspective on lifelong learning through linking Parse’s theory of human becoming to seven Da Vincian principles identified by Gelb (1998). The Da Vincian principles reflect all the salient features of Parse’s model. This unique link provides a nursing theory perspective on lifelong learning and sets out a framework for the development of new possibilities for lifelong learning. Nurse educators are exploring teaching strategies that address the needs of today’s student, such as opportunities to learn theoretical underpinnings of nursing and availability of distance courses. J. R. Norris (2002) explored one-to-one tele-apprenticeship as a teaching and learning strategy for Parse’s model. Tele-apprenticeship is defined as a one-to-one learning relationship, developed solely by e-mail, between a mentor and student. This was useful in guiding a student in the theoretical aspects of the Parse model but was unable to provide the depth and skills required to become expert in the practice methodology of the theory. Further research is needed in this area, particularly looking at the synchronized versus nonsynchronized discussions, video conferencing, chat rooms, and other technology that potentially could benefit this teaching-learning strategy.

Diana Lynn Morris
Updated by Mary T. Quinn Griffin

Participant Observation

Participant observation is an approach to data collection that is most often associated with naturalistic or qualitative inquiry, and it involves the researcher as a participant in the scene or observation that is being studied. The primary purpose is to gain an insider’s, or emic, view of an event, setting, or general situation. The researcher focuses on the context of the scene along with the ways that individuals are behaving. Examples might include making and participating in observations in a busy emergency room, observing the ways in which people carry out rites of passage, or participating in a special feast or occasion. The researcher attempts to make sense of the situation by interpreting personal experiences and observations and talking with individuals who are present, while simultaneously being fully involved in all of the experiences that occur in that setting. In this way participant observation enables the researcher to gain a view of a society but also serves as a way to validate verbal information that was provided by members of a society or group being studied. Another way in which participant observation may be used in research is with populations in which there is limited communication, such as very small children, the mentally impaired, or elderly stroke survivors. The challenge for the researcher is to combine the activities of observation and participation so that understanding is achieved while maintaining an objective distance.
To carry out participant observation the researcher needs to decide on (a) the role of the observer, (b) the degree to which the role is known to others, (c) the degree to which the purpose is known to others, (d) the amount of time that will be spent in conducting the observation, and (e) the scope of the observational focus. There is a continuum along which the role of the observer may be involved that ranges from involvement of the researcher in all aspects of the observational experience to only partial or minimal involvement. The researcher bases this determination on the research question and the nature of the research. For example, a researcher who assists in a homeless shelter may wish to be involved in all aspects of the daily routine; another researcher may wish only to conduct observations in a busy emergency room for which the routine is more complex. On the other hand, an invitation to participate in a special ceremony or ritual may involve only partial participation.

The degree to which the observer’s role and the purpose of the observation are known to others also is related to the intent of the research. In some cases the role of the researcher will be known to all, and in others it may not. If the purpose of the study is to know and understand a particular ritual or religious ceremony, for example, the role of the researcher may be known to all involved in the situation. In other cases the role of the researcher may be minimized, as in situations in which the informants may not fully understand the researcher’s participation: observing children on a playground or in a children’s unit in a hospital. However, ethical and moral issues arise when the nature and role of the researcher are not made known to all of the individuals being observed. The extent to which individuals are informed varies greatly, from full disclosure to no disclosure, and is often based on the researcher’s estimation of how scientific truth can best be obtained.

The amount of time the researcher spends in observation and the scope or focus of the observation also depend on the purpose and intent of the research. In some cases the participant observation experiences are carried out for the length and duration of the research. In other research studies, participant observation may occur at only one point during the study. For example, sometimes a researcher may choose to enter the field and become a participant observer prior to conducting interviews. This gives the researcher time to learn about a community, group of people, or situation and then to use this knowledge to develop questions for subsequent interviews. In addition, the focus and intent of the observations may vary from making general observations of the entire situation, context, or event to very focused observations. For example, a focused observation might include personal interactions or a specific nursing or caring behavior.

One major concern in using participant observation is the degree to which subjects may become sensitized to the researcher’s presence and may not behave as they normally would if the researcher were not present. The issue of subject sensitization can be addressed by increasing the duration of time the researcher spends in the observational experience. A longer time spent in observing can also enhance and strengthen the researcher’s credibility, as well as any theoretical and empirical generalizations that are made.

In summary, participant observation is a commonly used approach to data collection that is used in naturalistic or qualitative research. It is an approach that allows the researcher to gain an insider’s perspective on a social situation or event and can permit the researcher to be totally or minimally involved.

**Kathleen Huttlinger**

---

**Patient Classification**

Patient classification is a generic term referring to the grouping or categorization of patients according to a predetermined set of characteristics. Until the late 1980s, this term was used almost exclusively to refer to the classification systems for grouping patients according to their requirements for nursing
care and nursing resource determination and allocation. The exclusive use of the term to represent nursing systems became inappropriate with the widespread development of other patient classification systems (diagnostic related groups, case mix groups, and medical severity of illness systems) to capture medical resource use and complexity as the basis for hospital case costing.

With some peril, the terms severity and acuity systems were and continue to be used as equivalent terms. Connotations associated with these terms from the perspective of medical status led to misconceptions, as neither patient severity nor patient acuity correlates uniformly with nursing workload. In contrast, patient dependency and nursing intensity have been offered as more suitable labels to describe the intent of the patient classification systems designed for nursing. During the past decade, however, a shift in the use of terms has occurred. Those patient classification schemes that form the basis for the measurement of patients’ requirements for nursing care for the express purpose of nursing resource determination and allocation are now referred to as nursing workload measurement systems.

The process of classifying is defined as the ordering or arranging of objects or concepts into groups or sets based on relationships among the objects or concepts. The relationships can be based on observable or inferred properties. Classification theory also includes the distinction between monothetic and polythetic classifications. Monothetic schemes refer to those in which the classes established differ by at least one property that is uniform among the members of each class. In contrast polythetic schemes refer to those in which the classes share a large proportion of the properties but do not necessarily agree on any one property. Patient classification schemes for nurse staffing are recognized as polythetic, and their development coincides with the principles of this type (Giovannetti, 1978).

Work by Connor, Flagle, Hsieh, Preston, and Singer (1961) at the Johns Hopkins Hospital during the 1960s introduced the concept of classification into the study and measurement of nursing workload. The critical indicators or predictors of nursing care emanating from this work appear in most contemporary nursing patient classification systems.

Two types of patient classification systems, prototype evaluations and factor evaluations, were identified by Abdellah and Levine (1979). Prototype evaluations rely on the creation of several mutually exclusive and exhaustive patient categories. These are graded in terms of an ordinal scale in which the categories represent greater or lesser requirements for nursing care. The patient is classified into the category that most closely matches the profile or prototype description. Factor evaluation systems employ the selection of specific elements or indicators of care, representing either unique care activities or clusters of care activities. Ratings on individual elements are combined on the basis of a predetermined set of decision rules to provide an overall rating that determines the appropriate category.

The end product of the two types of evaluations is essentially the same. The difference lies in the method of rating; in prototype, the patient is rated on a number of characteristics simultaneously, whereas in factor, the characteristics are evaluated one by one. Edwardson and Giovannetti (1994) noted that many systems have been developed by vendors and consequently were not fully described in the published literature. More systems have been developed or modified at the institutional level and also not published.

Transforming classification schemes for their ultimate use as resource determination and allocation methods requires an estimate of the nursing care time required of patients in each category. The literature is replete with techniques for doing so and discussions of the central issues of reliability, validity, and comparability. Similar to nursing workload measurement system research, research on patient classifications systems has much to offer nursing practice, nursing administration, health care administration nursing, and other institutional policy formation. Information on patient classification systems is
available in professional, scholarly, management, and policy journals as well as in texts and government reports.

Phyllis B. Giovannetti

Patient Contracting

Patient contracting is an intervention for promoting patient adherence in practice or research settings. Patient contracting provides an opportunity for patients to learn to analyze their behavior relative to their environment and to select behavioral strategies that will promote learning, changing, or maintaining adherence behaviors (Boehm, 1992). Patient contracting is relevant to nursing practice and research because it can assist patients to adhere to treatment regimens, such as medication taking, meal planning, and physical activity.

Research on the effectiveness of patient contracting in nursing has been reported for a variety of behaviors across settings and disorders. For example, patient contracting has been used to control serum potassium levels (Steckel, 1974) and serum phosphorus levels (Laidlaw, Beeken, Whitney, & Reyes, 1999) in patients on dialysis; to increase knowledge and consistency in use of contraceptive methods by sexually active college women from a student gynecology clinic (van Dover, 1986); to increase knowledge, keep appointments, and reduce diastolic blood pressure in hypertensive outpatients (Steckel & Swain, 1977; Swain & Steckel, 1981); and to keep appointments, lose weight, and reduce blood pressure among outpatients with arthritis, diabetes, and hypertension (Steckel & Funnell, 1981). Patient contracting did not reduce blood glucose and glycosylated hemoglobin in patients with diabetes (Boehm, Schlenk, Raleigh, & Ronis, 1993; Morgan, B. S., & Littell, 1988; Steckel & Funnell).

Patient contracting is the process in which the nurse and patient negotiate an individualized, written, and signed agreement that clearly specifies the behavior and identifies in advance the positive consequences to be given when the patient has successfully performed the behavior (Steckel, 1982). The patient chooses the behavior and reinforcer in the contract with direction by the nurse. Patient contracting is based on the principle of positive reinforcement, which states that when a behavior is followed by a reinforcing consequence, there is an increased likelihood of the behavior being performed again (Boehm, 1992).

The nursing process provides the context within which to develop the patient contract. The nursing process provides the clinical data that can be jointly used by nurses and patients to establish priorities for adherence behaviors (Steckel, 1982). The adherence behavior is the ultimate complex behavior to be learned or changed. The adherence behavior is broken down into successive approximations or small steps. By performing small steps of the behavior, the patient gradually achieves performance of the adherence behavior. Over a series of patient contracts, the patient will specify a variety of behaviors, which include such behavioral strategies as self-monitoring, arranging and rearranging antecedent events, practicing small steps of the adherence behavior, and arranging positive consequences (Boehm, 1992). The first several patient contracts are usually for self-monitoring to identify the successive approximations of the adherence behavior and the antecedents and consequences of the behavior. In later patient contracts, patients specify behavioral strategies related to arranging antecedent events, practicing a small step of the behavior, or arranging positive consequences. Self-monitoring is ongoing throughout the behavior change process to provide data about the effectiveness of the new antecedents, the performance of the small steps of the behavior, and the new positive consequences.

Behavioral analysis is the foundation of the patient contracting intervention. Behavioral analysis is the process by which the patient’s behavior is observed, recorded, and analyzed in order to describe the successive approximations of the adherence behavior, the antecedent events that precede the behavior, and the consequences that follow the beha-
behavior. The behavioral data used in the analysis are obtained by the patient through self-monitoring (Boehm, 1992). Behavioral analysis begins with the patient self-monitoring the adherence behavior. Self-monitoring provides baseline data that can be used to determine the effectiveness of the behavioral strategies implemented later in the behavior change process. By using the patient’s self-monitoring records, the nurse can teach the patient to identify antecedent events that precede the behavior, small steps that comprise the behavior, and consequences that follow the behavior. Based on the behavioral analysis, behavioral strategies are specified that will assist in the behavior change.

Behavioral analysis can identify the multiple small steps that comprise the adherence behavior. When the small steps are identified, the behavioral strategy is to perform a small step of the adherence behavior for a designated period of time. When that small step is being successfully performed, the patient moves onto the next small step. Eventually, patients gradually achieve performance of the adherence behavior (Steckel, 1982). This behavioral strategy is effective because patients are often overwhelmed by expectations of a treatment regimen, which can lead to nonadherence. For example, sedentary patients who are beginning a walking program might start by walking 5 minutes three times per week. Each week the walking goal is gradually increased until they achieve their goal of accumulating 30 minutes of moderate-intensity walking 5 days per week.

Positive reinforcement is the behavioral strategy in which a positive consequence is provided contingent upon performance of the desired behavior, which results in an increase in performance of the behavior. Behavioral analysis can identify positive consequences for behaviors and provide ideas for new consequences (Boehm, 1992). The behavioral strategy is to arrange positive reinforcement to acquire or maintain a desired behavior. For example, adopting a walking program will be strengthened if a positive consequence follows each walking goal that is met. Positive consequences can be pleasurable items and activities; social reinforcement, such as praise; and cognitive reinforcement, such as feelings of pride. Conversely, eliminating positive reinforcement can be used to decrease or extinguish an undesired behavior. For example, eating with selected companions may eliminate positive consequences for inappropriate food item selections.

There are several directions for future research. First, studies are needed to determine the frequency of contact needed with subjects to produce progressive changes in adherence interventions using patient contracting. Second, patient contracting during the maintenance phase of adherence interventions has not been studied. Third, electronic self-monitoring by personal digital assistants or Internet web sites could be utilized during studies. Fourth, studies could include objective measures of adherence behaviors, such as, electronic event monitors to assess medication adherence and accelerometers or pedometers to assess physical activity.

Elizabeth A. Schlenk

Patient Education

Patient education is defined as a planned learning experience using a combination of methods such as teaching, counseling, and behavioral strategies that influence the patient’s knowledge and behavior (Bartlett, 1985). Since the mid-19th century patient education has been a fundamental cornerstone of health care and today it is an integral component of professional standards of care issued by nursing organizations, such as “A Patient’s Bill of Rights” published by the American Hospital Association, and the regulations of the Joint Commission on Accreditation of Healthcare Organizations. Its importance rests on the fact that the well-being of individuals, whether or not they have a diagnosed disease, often is dependent on health-related actions those individuals take on their own behalf. In the managed care environment of today, with its concomitant decrease in the incidence and length of hospi-
talizations for specific health problems, and the shortening of time allocated to outpatient office visits to a health practitioner, patient’s and family’s responsibility has increased while the time to provide traditional face-to-face patient education has decreased. Innovative strategies for delivering patient education, such as the use of electronically mediated technologies, need to be explored (e.g., CD-ROM or Internet-based education, or education as a component of telehealth). Strategies to increase effective self-management such as patient empowerment, collaborative goal setting, and problem-solving skills (Wagner, Davis, Schaefer, Von Korff, & Austin, 2002) may need to be added to traditional didactic content.

Research on the effect of patient education began in the early-1960s, and in the late 1980s meta-analyses of this research began to be published. Major researchers in this area and the patient population that was the focus of their review(s) include: A. C. Bernard-Bonnin and associates, and J. P. Guerra and associates (adults with diabetes); E. C. Devine and associates [(1) adults having surgery, (2) adults with hypertension, (3) adults with cancer, (4) adults with chronic obstructive pulmonary disease, and (5) adults with asthma]; E. Monninkhof and associates (adults with chronic obstructive pulmonary disease); W. J. Huestron and associates (women at risk for preterm birth); P. D. Mullen and associates [(1) adults with coronary disease, (2) adults with arthritis, (3) pregnant women who smoke]; and A. M. Peterson (medication adherence).

Many but not all of the meta-analyses of the effect of patient education have found that it is beneficial for the patients receiving it. These beneficial effects have included not only increased patient knowledge, but also positive effects on a wide range of disease-specific outcomes (e.g., blood pressure control among individuals with hypertension [Devine & Reifschneider, 1995]; pain among cancer patients [Devine, 2003]; blood sugar control at 6 months postintervention among adults with diabetes [Brown, S. A., 1992]), and lung function, school absenteeism, and number of visits to the emergency department in children and adolescents (Guevara, Wolf, Grum, & Clark, 2003). However, statistically significant positive effects have not always been found. For example, there was not a consistent beneficial effect of patient education on hospital admissions and lung function among adults with chronic obstructive pulmonary disease, although there was a decrease in the need for rescue medication (Monninkhof et al., 2003). Preterm-birth prevention education did not decrease the preterm delivery or the neonatal death rates among high-risk women (Hueston, Knox, Eilers, Pauwels, & Lonsdorf, 1995). There were short-term but not long-term effects on both blood sugar levels in diabetics (Brown, 1992) and on disability, joint counts, psychological status, and depression in adults with rheumatoid arthritis (Riemsma, Kirwan, Taal, & Rasker, 2003). Clinicians wanting to apply patient education research findings in their practice will need to review the research carefully to find primary research or meta-analyses of research that match both their client group and the outcomes they want to affect.

Critical issues for the profession remain. These include: What combinations of treatment components and modes of treatment delivery are the most effective? To what extent have educational interventions been tested in minority populations? Are culturally-specific interventions needed with minority populations? How do we adapt patient education for nonliterate populations? How do we make the best use of newer computer-based technologies (e.g., the Internet)? How do we educate patients to evaluate and make good use of Internet-based information?

While many of the reviews of patient education research suggested that patient education is beneficial for patients, the research was less clear about which specific types of patient education and which modes of treatment delivery are the most effective for which types of patients. This limitation arises from three problems. First, it is common for patient
Given the research base for patient education and the professional standards that dictate its use, clearly the question is no longer simply: Does research suggest that systematic patient education should be provided? The many remaining researchable questions are at a finer level such as: Is it possibly to improving patient education through the use of technology, or are culturally-specific education programs more effective in underserved groups?

There are ethical and professional mandates to educate patients so that they can make informed decisions about their health. These mandates are undoubtedly over time helping to change the patient education included in usual care. This dynamic nature of care makes it even more important for researchers and clinicians to be aware of the patient education typically provided as part of usual care in their setting.

Elizabeth C. Devine
Deborah L. Gentile

Patient Safety

Past efforts to reduce costs and streamline the delivery of health care have led to significant changes, not always with a positive effect. The Institute of Medicine’s (IOM) report, To Err is Human, which spotlighted the problem of patient safety, reported that tens of thousands of Americans die each year as a result of human error in the delivery of health care (Institute of Medicine, 2000). The second report in this series described broader quality issues and defined six aims: These included that care should be (1) safe, (2) effective, (3) patient-centered, (4) timely, (5) efficient, and (6) equitable (Institute of Medicine, 2001). The most recent report found that nursing is inseparably linked to patient safety, emphasizing that poor working conditions for nurses and inadequate nurse staffing levels threaten patient safety and increase the risk of errors (Institute of Medicine, 2003).

To improve patient safety, common definitions should be used and it should be under-
stood that not all adverse events are patient safety problems. Essentially, patient safety applies to initiatives designed to prevent adverse outcomes resulting from errors and near misses. Near misses are of interest because of the high probability of the event causing harm to the patient. Unfortunately, many adverse events and near misses are related to low nurse staffing levels or unskilled and inexperienced clinicians.

Health care leaders and managers should strive to create nursing work environments that are conducive to patient safety. To do this, evidence-based management (EBM) strategies are suggested. Most clinicians are now familiar with the notion of evidence-based practice, defined as the conscientious, explicit, and judicious integration of current best evidence to inform clinical decision making. However, EBM is a fairly new term and framework (Sacket et al., 1996). EBM implies that managers, like clinical practitioners, search for, critically appraise, and apply empirical evidence from management research in their practice. Currently, both managers and clinicians have little research-based evidence to apply and are often not experienced in the use of such evidence.

In a seminal study on leadership, transactional leaders were differentiated from the more potent transformational leaders (Burns, J., 1978). Transactional leadership typifies most leader-follower relationships; it involves a “you scratch my back, I’ll scratch yours” exchange. In contrast, transformational leadership occurs when leaders engage with their followers in jointly held goals. This leadership approach is recommended because it transforms all workers—both managers and staff—in the pursuit of the higher collective purpose of patient safety and quality care.

An emerging evidence base is finding a strong correlation between higher staffing levels and lower occurrence of adverse events. In an study of 589 hospitals in 10 states, the registered nurse (RN) staffing level was found to be inversely related to urinary tract infections (UTI) and pneumonia after major surgery (p < .0001) (Kovner & Gergen, 1998). In another study of 799 hospitals from 11 states, researchers found UTI and pneumonia to have a consistently strong inverse relationship with nurse staffing ratios (Needleman, Buerhaus, Mattke, Stewart, & Zelevinski, 2001).

A line of research with a broader focus than staffing levels is the investigations involving Magnet hospitals (i.e., hospitals that attract nurses, hence the term Magnet). When Magnet hospitals were matched with control hospitals, controlling for case mix, Aiken and colleagues observed a Medicare mortality rate that was lower by 4.6 per 1,000 discharges (95% confidence interval 0.9 to 9.4) (Aiken, Smith, & Lake, 1994). However, besides the attainment of Magnet status, specifics were not identified. Magnet hospitals are known for higher nurse-to-patient ratios, lower staff turnover rates, and higher rates of nursing satisfaction.

Nurses are in the position of being “at the sharp end” of health care interventions by being the patient’s advocate, providing care that may result in an error, or witnessing the error(s) of other clinicians. Accidents, errors, and adverse outcomes result from a chain of events involving human decisions and actions associated with active failures and latent failures. Many of these failures are associated with individual performance that is impaired by stress, distractions/interruptions, and fatigue.

Care delivery needs to be redesigned respecting human limitations, particularly the debilitating effects of stress and fatigue on performance (Norman, 2002). Research continues to confirm that clinicians with the appropriate skill, experience, and workload are less likely to make patient safety errors. Yet one of the barriers to improving patient safety, considering the level and types of interactions among clinicians and components within health care, is the ability to recognize and correct errors (Kohn, Corrigan, & Donaldson, 2000).

There is increasing consensus that the organizational culture impacts patient safety and the quality of care (Gershon, Stone, Bakken, & Larson, 2004). Important aspects of
safety cultures include communication, non-hierarchical decision making, constrained improvisation, training, and rewards and incentives (IOM, 2003a).

Organizational and individual commitment to improving patient safety requires effective leadership and proactive interventions. Patient safety improvements need to draw from qualitative and quantitative research describing work processes and responsibilities, methods to improve performance respecting human limitations, and designs of patient safety supportive communication and team approaches to health care delivery.

PATRICIA W. STONE
RONDA G. HUGHES

Patient Satisfaction

Patient satisfaction has become increasingly popular as a critical component in the measurement of the quality of care. Donabedian (1988) theorized that the quality of medical care could be evaluated from three perspectives: its process (how and what things are done), structure (the setting in which the care is administered), and outcomes (e.g., the effects on health status and patient satisfaction). Few studies of patient satisfaction existed prior to the 1970s. After that time, there was an increase in the research conducted in this area. The number of studies of patient satisfaction parallels the research on consumer satisfaction, which has historically been conducted by industries interested in maintaining and/or increasing their market share. Research on patient satisfaction has continued to gain momentum with the Total Quality Management (TQM) and “outcomes” movements of the 1980s and 1990s, and over the last decade as the health care marketplace has become more competitive.

Patient satisfaction is a complex concept with several dimensions. Ware, Davies-Avery, and Stewart (1978) developed a detailed taxonomy of patient satisfaction from their review of 111 studies published over the 25-year period prior to 1975. The taxonomy initially included the art of care, technical quality of care, accessibility/convenience, finances, physical environment, availability, efficacy, and continuity. After decades of continued research, the dimensions of care were refined to include the following six dimensions: nursing and daily care, hospital environment and ancillary staff, medical care, information, admissions, and discharge and billing (Ware & Berwick, 1990).

Risser (1975) developed an instrument to ascertain patient satisfaction that was specific to nursing care. The Risser Patient Satisfaction Scale (PSS) included 25 questions and three subscales: Technical/Professional Area, Educational Relationship Area, and Trusting Relationship Area. The PSS was originally developed to measure the care of ambulatory patients and was later adapted to the hospital setting through minor rewording and a replication study (Hinshaw, A. S., & Atwood, 1982). La Monica, Oberst, Madea, and Wolf (1986) further developed the PSS to reflect nursing behaviors in the acute care setting and additional items were added and then subjected to psychometric testing to ensure reliability and validity (Munro, Jacobsen, & Brooten, 1994).

Patient satisfaction with nursing care has consistently been found to be correlated with overall satisfaction with care, and has been defined as the “patient’s subjective evaluation of the cognitive/emotional response that results from the interaction of the patient’s expectations of nursing care and their perception of the actual nurse behaviors/characteristics” (Erikson, 1995, p. 71). Measuring patient satisfaction with care is instrumental to the success of providing patient-centered care and allows consumers to participate in the evaluation process.

The majority of studies on patient satisfaction have been cross-sectional and descriptive in nature. Characteristics of providers or organizations that result in more “personal” care have been associated with higher levels of satisfaction (Cleary & McNeil, 1988). The nurse work environment has been found to
be both directly and indirectly (through nurse burnout) related to patient satisfaction (Val-
hey, Aiken, Sloane, Clarke, & Vargas, 2004). Patients cared for on units which nurses char-
acterized as having adequate staff, good ad-
ministrative support for nursing care, and

good relations between doctors and nurses
were more than twice as likely as other pa-
tients to report high satisfaction with their
care; additionally, their nurses reported sig-
ificantly lower burnout. Patient satisfaction
has also been found to be associated with
patient adherence to care provider recom-

dendations and intent to return for or refer
services (Hill, M. H., & Doddato, 2002).

It is clear that there are many important
implications for assessing and improving pa-
tient satisfaction with nursing care. The
American Nurses Association (ANA), the
Joint Commission on Accreditation of Health
Care Organizations (JCAHO), and others
have identified patient satisfaction as an
important quality indicator (American Nurses
Association, 1996, 2000a; Donabedian,
1988; Joint Commission on Accreditation of
Healthcare Organizations, 2003a). However,
there are several challenges facing researchers
in the 21st century.

A major challenge is the need for psycho-
metically sound, reliable, and valid measures
(McDaniel & Nash, 1990). Patient satisfac-
tion with nursing care is a multidimensional
phenomenon and therefore a single item will
not suffice. However, researchers must con-
sider the burden to patients and limit the
number of items to only those that are essen-
tial. Additionally, a standardized approach
to the measurement of patient satisfaction
will allow care providers to benchmark their
services and consumers to adequately com-
pare across providers in order to make in-
formed decisions about their care. Currently,
the ANA and the Centers for Medicare and
Medicaid Services (CMS) are working to-
ward this goal by developing multisite data-
bases. The ANA is sponsoring the National
Database for Nursing Quality Indicators
(NDNQI), which plans to collect data on pa-
tient satisfaction with pain management, edu-
cational information, nursing care, and over-
all care (National Center for Nursing Qual-
ity, 2004). The CMS has implemented a
three-state pilot project to test and refine a
standardized “Patient Experience of Care”
(Centers for Medicare & Medicaid Ser-

Another challenge is for health care re-
searchers to refine the methodological strate-
gies so that techniques with greater sensitivity
can be achieved. Cross-sectional studies limit
the ability to identify causal relationships and
generalize findings. Results from mail and
telephone surveys, which are the most com-
mon methodologies, can be biased because
of the timing of these surveys and the rigor
in which responses are obtained. Moreover, it
is argued that patients tend to report “socially
desirable” ratings, which result in data that
are skewed and typically reported as high
levels of satisfaction. Some researchers there-
fore have recommended that health care pro-
viders focus only on areas of dissatisfaction
or patient complaints. Future research should
consider other methods for assessing patient
satisfaction, which may include focus groups,
observation, or qualitative studies. These
methods may help isolate “critical mo-
ments”—such as specific episodes of care or
interactions with care providers, or more
clearly identify patient expectations prior to
service and whether they are met—which is
likely to be a more effective and efficient way
to assess important dimensions of care and
to make improvements.

Finally, one of the main indications for
measuring patient satisfaction with nursing
care is to identify areas for improvement; how-
ever, few studies have examined the ef-
fects of interventions. Recognizing the con-
tributions of nursing to improved patient out-
comes and the quality of care will lead to
the provision of safe patient-centered care.
Designing studies to evaluate interventions
that take into consideration increasing pa-
tient acuity, shorter lengths of stay, and the
cultural diversity of patients will provide for
enduring changes resulting in high-quality
health care that benefits both patients and providers.

Doris C. Vahey

Pediatric Primary Care

Pediatric primary care has existed for a long time and has been provided by family practice physicians and pediatricians. In the last 25 years, primary care has changed to include pediatric nurse associates who are now called pediatric nurse practitioners (PNPs). PNPs were the first nurse practitioners; they are advanced practice nurses who are educated to provide primary care services to children. Dr. Henry K. Silver and Dr. Loretta Ford started the PNP program in Colorado in 1964. Although the role has remained much the same from its inception, one major change is the level of education required. Originally it was a 4-month continuing education program and now it is a 2-year educational program culminating with a master’s degree. National certification is required, in some states to allow PNPs to practice. There are two certifying organizations for PNPs: the American Nurses Credentialing Center (ANCC) and the Pediatric Nursing Certification Board (PNCB).

Currently, there are differences in health care outcomes between minority and majority ethnic groups. Children in minority groups are at much greater risk for poor health care factors, and there is a lack of culturally competent health care providers. In 1998, President Clinton presented the Initiative to Eliminate Racial and Ethnic Disparities in Health. This proposal seeks to eliminate disparities by the year 2010, and focuses on the same goals and outcomes as Health People 2010: infant mortality, child and adult immunizations, HIV/AIDS, diabetes, cardiovascular disease and stroke, and cancer screening and management. Access to health care and quality of health care are also part of the focus (Stinson, 2003)

Childhood immunizations, particularly in children less than 2 years of age, continue to be a major health concern in primary care. Health People 2000 and the President’s Childhood Immunization Initiative mandated a goal of 90% immunizations for children younger than 2 years of age by the year 2000. In 1992, only 55% of children under the age of 2 years had received an adequate number of immunizations. By 1994, the rate had risen to 73%, and now it is close to the 90% goal. While these are excellent numbers, there still remain pockets primarily in large cities where immunizations rates are much lower. Data from the CDC National Immunization Survey suggest that minority children, primarily African-American and Hispanic, children living below the poverty level, children of teen mothers, children in large families, children of parents who lack education, families with transportation problems, and children of mothers who lack social support have lower rates of receiving immunizations by age 2 years than the national average.

Obesity is another health issue commonly seen in primary care. It is a complex issue and not fully understood. The number of obese children has increased substantially in the last 20 years, putting them at risk for serious health problems as adults including cardiovascular disease and stroke, diabetes, hypertension, arthritis, and psychological problems. Obesity during infancy and childhood increases the risk of obesity in adolescence and adulthood. Children with a body mass index equal to or more than the 95th percentile are more likely to become obese adults. Obesity is considered to be multifactorial with both genetic and environmental components. Family lifestyle, stress, socioeconomic status, and maternal characteristics are some of the environmental components. Sowan and Stember (2000) studied infants until 15 months of age to identify parental characteristics and to see whether obesity was linked to any of these characteristics. Age of the mother at the time of the infant’s birth was predictive of obesity in the infant at 10 months of age. The chances of obesity increased in the infant with every 5 years of age increase in the mother. For every 25 pound increase in the mother’s usual weight, the
chances of the infant being obese at 7 months of age increased. Maternal smoking increased the chances of infant obesity at 1 and 7 months of age. The usual stressors one might think could cause childhood obesity such as family stresses, socioeconomic status, and family life were found not to be significant predictors.

Faulkner (2002) studied 18 mothers of preschool children enrolled in a nutrition clinic for mothers and children in low-income households. Mothers were questioned in a 1-hour focus group as to how they defined overweight, how they thought their children became overweight, and what barriers existed in preventing and managing obesity. Interestingly, the mothers described their children as strong or solid and did not think that standardized growth charts reflected a healthy weight. As long as children were active the mothers did not consider them overweight but if they were lazy or lay around then they were considered overweight. The mothers thought that heredity and the environment determined the child’s weight. In their attempts to manage their children’s weight, the mothers had lots of difficulty. Food was used as a reward by some, others did not want to deny their children food, and with others, family members did not want the mother restricting the child’s diet. Mothers also thought that their own obesity affected their management of their child’s weight.

Prevention of obesity and development of effective programs for those who are overweight are critical to reversing the devastating long term effects. Unfortunately, there are not many effective programs available for children. Dietary management, increasing physical activity, and parental behavior management are critical ingredients in any program (Betz, 2000). Primary care providers need to include appropriate eating patterns, types of foods and amounts when talking with parents during well-child visits. Parents have a crucial role in how children’s eating habits develop and how that affects their overall health and psychological well-being.

K. James (2000) introduced a school-based intervention to reduce television and video viewing and then measured body mass index (BMI) at baseline and 7 months later. The children in the intervention group had a significant decrease in BMI when compared to those in the control group. There are few studies which demonstrate significant reduction in children’s weight. More innovative low or no cost programs aimed at families and children need to be developed and perhaps schools are the place for implementation.

It is imperative that adequate and appropriate health services are available to children and families to help ensure positive outcomes. A variety of health care providers, including nurse practitioners with knowledge of the needs of children, is essential for changes to occur.

**Virginia Richardson**

**Pender’s Health Promotion Model**

Pender’s Health Promotion Model (HPM) has been classified as a middle-range theory. The model seeks to explain and predict how the complex interaction among perceptual and environmental factors influences the health-related choices that people make. Specifically, Pender intended the focus of the model to be high-level wellness and health promotion, instead of disease prevention. The model has been used internationally as the basis for nursing research, practice, and education (Pender, 2001b, *Most frequently asked questions*).

Pender’s representation of healthy behavior is deductive in that it was originally based on concepts from the Health Belief Model, Expectancy Value Theory, and Social Cognitive Theory (Pender, 1982). However, the model is also inductively formulated because over time Pender has made modifications based on research findings. Since her first published model in 1982, Pender has made two major revisions to her model resulting in a 1987 version and a 1996 version. Changes
were based on research that supported using fewer variables with more direct and indirect relationships.

The assumptions of the Health Belief Model stress the interactive nature of client and environment. They include:

1. People desire conditions that facilitate the expression of their individual potential.
2. People have the capacity for self-awareness.
3. People value positive growth, and attempt to balance change and stability.
4. There is a natural human desire to control one’s own behavior.
5. Humans both change their environment and are changed by it.
6. As part of the environment, health care workers influence others.
7. Lasting behavior modification is based on self-initiated change (Pender, Murdaugh, & Parsons, 2002).

The theoretical propositions of the revised HPM state that characteristics and beliefs of an individual will influence the person’s level of commitment and likelihood of demonstrating the health promotion behavior. The HPM consists of nine groups of interrelated variables. Some of the variables that are proposed to indirectly and directly influence one’s commitment to a healthy plan of action are past behavior and personal characteristics, positive emotions, perceived self-efficacy, perceived benefits and barriers, expectations of others, environment, and competing demands (Pender et al., 2002).

In Pender’s conceptual map (1996) related variables are clustered together and separated into three main categories. The antecedents to action are the Individual Characteristics and Experiences, which include variables that have been determined by past experiences, genetics, or biopsychosocial influence. The majority of the other variables that are based on beliefs and outside influences are fused together under the heading Behavior Specific Cognitions and Affect. Both of these groupings are related to the last cluster of variables termed the “behavioral outcome.” The desired outcome is the health promotion behavior, which is influenced by competing demands and making a commitment to changing behavior.

Pender’s HPM has been used in research, clinical practice, and nursing education. Dozens of published nursing articles have used the model as a theoretical framework. Research based on the HPM covers a variety of clinical applications such as the use of hearing protection, smoking cessation, exercise, sexual behaviors and contraceptive use, dietary goals and cholesterol levels, use of seat belts, job strain/absenteeism/productivity, and stress reduction. Nursing implications derived from the HPM research offer specific nursing interventions that can be readily used in clinical practice. Information about how to promote healthy choices and lasting behavior modification is valuable to both health care professionals and the public. Pender has also published an article specifically outlining health promotion recommendations for BSN, MSN, and PhD nursing curricula (Pender, Barkauskas, Hayman, Rice, & Anderson, 1992).

The HPM offers a high degree of generalizability to many diverse groups of people. Pender has consulted internationally in such countries as Japan, Korea, Dominican Republic, Jamaica, England, New Zealand, and Mexico (Pender, 2001a, Biographical sketch). Currently the HPM is available in English, Spanish, Japanese, and Korean translations (Pender). Research based on the model has tested both males and females at all ages from preschool children to older adults. Research participants have been from a variety of settings including inpatient, outpatient, primary care, and community dwellings. Most importantly, the research based on the HPM has not been limited to healthy subjects. Some populations that have been studied have included people diagnosed with CAD, HIV, asthma, cancer, hypertension, cognitive disorders, and chronic disease.

Past critiques of the model have suggested that Pender needs to further clarify interactions among the variables (Tillett, 1994). In her most recent revision, she has clustered
and labeled the variables differently in order to specify relationships. The HPM may also be inappropriate when nurses are interacting with clients who are cognitively impaired or unable to communicate. Examples would include infants or individuals with severe neurological deficits. Overall, the predictive power of the model will always be limited by the inherent uniqueness and variation of each human’s behavior.

Strengths of the HPM include its use of concepts that are logical and basic, its generalizability, and its usefulness in research and clinical practice. Pender’s model also addresses the barriers to action that are important areas to focus nursing intervention. Lastly, Pender has taken a truly holistic approach, considering sociocultural, psychological, and biological variables. The content of the HPM model is consistent with contemporary beliefs that health promotion is a national and international priority and a cost-effective alternative to sick care.

CARYN A. SHEEHAN

Peplau’s Theoretical Model

Hildegard Peplau (1909–1999) formulated her theoretical ideas about the therapeutic process of nursing in the 1940s and published them in the now-classic 1952 book, *Interpersonal Relations in Nursing*, after a lengthy dispute with publishers about the ability of a nurse to author a book. At a time when nurses were “doers” for patients and “followers” of physicians’ orders, Peplau’s theoretical work and teachings helped catapult nursing from an occupation to a profession. Peplau’s ideas provided a foundation for nurses to understand health from a nursing theoretical perspective and to establish interpersonal relationships with patients as the significant context in which nurses facilitate patients’ well-being.

Through Peplau’s therapeutic relationship, the patient develops inner resources for healthy behaviors by actively participating with the nurse in a developmental process of change. Peplau’s interpersonal relationship is also a process through which nursing knowledge is developed and validated (Reed, 1996b). Peplau (1992) purposefully linked her theory to practice and research, as evidenced in her basic assumption that “what goes on between people can be noticed, studied, explained, understood, and, if detrimental, changed” (p. 14).

Peplau’s theoretical model derives from the perspective of a critical philosophy that integrates both the science and practice of nursing in theory development. Peplau’s theoretical model was based upon her study, observation, and analyses of nurses and patients and was influenced by Harry Stack Sullivan and others’ psychodynamic perspectives. Peplau’s (1952) classic descriptions of nursing express the nature and goals of the interpersonal process: “Nursing is a human relationship between an individual who is sick or in need of health services, and a nurse especially educated to recognize and to respond to the need for help” (pp. 5–6). Nursing is an “educative instrument, a maturing force, that aims to promote forward movement of personality and other ongoing human processes in the direction of creative, productive, personal, and community living” (p. 16). Peplau (1988) further described nursing as an “enabling, empowering, or transforming art” (p. 9). Health, according to Peplau (1952), is a “word symbol that implies forward movement of personality and other ongoing human processes in the direction of creative, productive, personal and community living” (p. 12). Illness forces a “stock-taking by the sick person, which nurses can use to promote learning, growth and improved competencies for living” (Peplau, 1992, p. 13). Health and illness are closely linked to successful management of anxiety, which ranges from pure euphoria to pure anxiety. An optimal level lies between these anxiety extremes, as determined by nurse and patient.

Through the therapeutic relationship, the nurse uses a complex set of strategies to assist the patient in using energy provided by the anxiety to identify and grow from a problem-
atic situation (O’Toole & Welt, 1989; Reed, 2005). The nurse-patient relationship is fundamental to providing nursing care and derives from the human need for connectedness that is still essential in the 21st century (Peplau, 1997). Through this interpersonal relationship, nurses assess and assist people to: (a) achieve healthy levels of anxiety intrapersonally and (b) facilitate healthy pattern integrations interpersonally, with the overall goal of fostering well-being, health, and development. This relationship also provides the context for the nurse to develop, apply, and evaluate theory-based knowledge for nursing care. Nurse interpersonal competencies, investigatory skill, and theoretical knowledge as well as patient characteristics and needs are all important dimensions in the process and outcomes of the relationship (Peplau).

The structure of the interpersonal relationship was originally described in terms of four phases: orientation, identification, exploitation, and resolution (Peplau, 1952). Forchuk (1991), with the support of Peplau, clarified the structure as consisting of three main phases: orientation, working (which incorporated identification and exploitation), and termination. In a 1997 publication, Peplau endorsed this three-phase view and explained that the phases were overlapping, each having unique characteristics. Throughout these phases the nurse functions cooperatively with the patient in the nursing roles of stranger, resource person, counselor, leader, surrogate, and teacher. The nurse’s range of focus includes the patient in relationship with the family, other health care providers, and community (Peplau, 1952, 1997).

The orientation phase marks a first step in the personal growth of the patient and is initiated when the patient has a “felt need” and seeks professional assistance (Peplau, 1952, p. 18). The nurse focuses on “knowing the patient as a person” and uncovering erroneous preconceptions, as well as gathering information about the patient’s mental health problem (Peplau, 1997). The nurse and patient collaborate on a plan, with consideration of the patient’s educative needs. Throughout the process, the nurse recognizes that the power to accomplish the tasks at hand resides within the patient and is facilitated through the workings of therapeutic relationship.

The focus of the working phase is on: (a) the patient’s efforts to acquire and employ knowledge about the illness, available resources, and personal strengths, and (b) the nurse’s enactment of the roles of resource person, counselor, surrogate, and teacher in facilitating the patient’s development toward well-being (Peplau, 1952, 1997). The relationship is flexible enough for the patient to function dependently, independently, or interdependently with the nurse, based on the patient’s developmental capacity, level of anxiety, self-awareness, and needs.

Termination is the final phase in the process of the therapeutic interpersonal relationship. Patients move beyond the initial identification with the nurse and engage their own strengths to foster health outside the therapeutic relationship (Peplau, 1952, 1988). In addition to addressing closure issues, the nurse and patient engage in planning for discharge and potential needs for transitional care (Peplau, 1997).

Peplau’s theoretical model can be categorized as a middle-range theory. It is narrower in scope than a conceptual model or grand theory and addresses a clearly defined number of measurable concepts (e.g., therapeutic relationship, anxiety). The theory has a specific focus on the characteristics and process of the therapeutic relationship as a nursing method to help manage anxiety and foster healthy development. As such, the model is directly applicable to research and practice.

Peplau was explicit in promoting research-based theory. Research based on Peplau’s theoretical model has addressed topics related to both nurse behaviors and patient health conditions. Nurse-focused topics include: (a) the practices of psychiatric mental-health nurses, (b) family systems nursing, and (c) the nature of the nurse-patient relationship in reference to roles and role changes over the trajectory of a mental illness, boundary issues in pediatric nursing, and concepts such as therapeutic intimacy. Patient-focused re-
search has addressed health conditions including depression, psychosis, sexual abuse, Alzheimer’s disease, and multiple sclerosis. A particularly notable Peplau-based researcher is Forchuk (e.g., Forchuk, 1994; Forchuk et al., 1998; Forchuk, Jewell, Tweedell, & Steinmang, 2003) who, along with colleagues, has conducted a program of research into applications of the interpersonal relationship process in psychiatric mental-health nursing care.

Peplau’s model is historically significant for practice in that it propelled psychiatric nursing from custodial-based care to interpersonal relationship theory-based care. Peplau is considered the founder of professional psychiatric mental-health nursing and was the first to initiate an area of advanced practice nursing. Her theoretical ideas continue to be significant in contemporary nursing for their relevance in not only psychiatric mental-health nursing practice but practice anywhere a nurse-patient relationship exists. Applications of the model are found in individual psychotherapy, reminiscence therapy, terminal illness care, and group and family therapy. Practices based upon Peplau’s theory range from hospital to community and home-based.

Peplau’s theory has provided an enduring educational foundation for teaching the nurse-patient relationship as a pivotal nursing process in all contexts of practice. A common philosophy underlying all nursing curricula is a belief in the value of a therapeutic nurse-patient relationship that promotes active participation of patients in their health care. Peplau’s theoretical work has also promoted a “paradigm of professionalization” and empowerment for educating nurses for the 21st century (Sills, 1998).

Peplau’s theoretical model continues to influence nursing research, practice, and education (O’Toole & Welt, 1989), although her original contributions have become knowledge in the public domain and are not always explicitly acknowledged. Internationally, nurses are recognizing Peplau’s legacy and the enduring relevance of her theory for nursing in the new millennium (e.g., Barker [2000]). The clinical significance of the therapeutic relationship is likely to increase as health problems shift to those related to stress-related conditions, chronic illness, aging processes, and end of life, where medical-surgical approaches alone have little success in promoting well-being. Peplau’s interpersonal relationship theory is expected to withstand the current health care crisis and provide a cost-effective and satisfying resource for patient well-being across a variety of nursing contexts.

The reawakening of nursing by Peplau’s ideas in the 1950s continues today through exploration, study, and use of the science-based practice of interpersonal relations theory. Beeber’s (1998) research and theory development have extended Peplau’s model in important ways, using aesthetic knowing to elaborate on the concept of interpersonal pattern and formalizing Peplau’s (1997) idea of transitions in a practice theory of depression. Metatheoretical writings of Peden (1998) and Reed (1996a), inspired by Peplau’s practice-based strategy of theory development, portray an emerging philosophy of nursing science that sanctions clinicians as well as traditional researchers as knowledge-builders. Through the creative scholarship of nurses, Peplau’s theoretical model can continue to evolve and inspire development of nurse-patient processes that meet contemporary health needs of society.

PAMELA G. REED
NELMA B. SHEARER

Pet Therapy

Pet therapy (use of a companion animal to benefit the health of humans) has become a very popular intervention for a variety of clients, and many nurses as well as pet owners have become involved in its delivery. While at the intuitive level pet therapy appears to be beneficial, there are relatively few scientific studies to support its effectiveness. This growing body of research on pet therapy has largely been generated by multidisciplinary
scholars, of which nurses have been active participants.

In general, the research on pet therapy generated by nurses falls into three distinct categories: research on the bio-physiological effects of pet therapy; research on the effects of companion animals in alleviating the distress of children undergoing painful procedures; and research on the effectiveness of companion animals for the elderly. This review is divided into these three categories. Studies are included if at least one of the authors is a nurse.

One of the earliest studies that demonstrated the health benefits of companion animals was coauthored by a nurse, Sue Ann Thomas (Friedmann, Katcher, Lynch, & Thomas, 1980). A group of patients who had been admitted to either coronary care or intensive care units with diagnoses of myocardial infarction or angina pectoris were followed for 1 year after discharge. At one year, 28% of the patients who did not own pets had died, but only 6% of the pet owners had died. Caring for the animal was not a factor in the survival rate, and pet ownership was correlated with survival but not with the physiological severity of the disease. Thomas also coauthored a subsequent study that demonstrated that the presence of a friendly animal could modify children’s perceptions of an experimental situation and result in lower blood pressures while the children were resting and while they were reading (Friedmann, Katcher, Thomas, Lynch, & Messent, 1983).

The first controlled trial of the effect of interaction with a companion dog on blood pressure was published in Nursing Research in 1984 (Baun, Bergstrom, Langston, & Thomas, 1984). Prior to this time, several investigators outside of nursing had released findings from non-experimental observations that seemed to indicate that petting a dog could lower blood pressure, but these studies were never published as scientific journal articles. Thus, the Nursing Research article became a landmark study in the fledgling field of the human-animal bond. The study used a within subject, repeated measures design to measure blood pressure (systolic, diastolic, and mean), heart rate, and respiratory rate across three protocols (interacting with a dog to whom the subject was attached, interacting with an unknown [control] dog, and reading quietly). There was a statistically significant difference among the three protocols. Interaction with a known dog resulted in greater decreases in BP than either interacting with the control dog, or reading quietly. This study was the first to suggest that attachment to the animal played an integral role in the human’s physiological responses to that animal. Subsequent nursing studies on hypertensives (Schuelke et al., 1991) and other subjects (Oetting, Baun, Bergstrom, & Langston, 1985) confirmed these findings.

Children and animals seem drawn to each other and several studies have explored the benefits of this relationship in the clinical setting. In a study of the effects of the presence of a companion animal on physiological arousal and behavioral distress exhibited by preschool children during a routine physical examination, a within subject, time series design was used to study healthy children during two physical examinations, with and without a dog present, conducted in a behavioral laboratory (Nagengast, Baun, Megel, & Leibowitz, 1997). Statistically significant differences were found with greater reductions in subjects’ systolic and mean arterial pressure, heart rate, and behavioral distress when a dog was present.

A follow-up study was conducted on preschool children attending a pediatric clinic using a two-group, repeated measures design, in which the experimental group had a therapy dog present during their pediatric examination and the control group did not have the dog present (Hansen, Messinger, Baun, & Megel, 1999). Physiological measures of blood pressure and finger temperature were not statistically significantly different between the dog and no-dog groups but were found not to be good measures of physiologic arousal in this age group. Behavioral distress was statistically significantly less in the dog group versus the no-dog group. These findings replicated those of Nagengast and colleagues (1997) and suggested that companion...
animals may be useful in a variety of health care settings to decrease procedure-induced distress in children.

A third study evaluated the effectiveness of a companion animal on physiologic arousal and behavioral distress among children undergoing a dental procedure (Havener et al., 2001). A two-group, repeated measures experimental design was used to study school age children undergoing procedures in a pediatric dental children. Half the children had the dog present during the procedure and half did not. Children who initially verbalized distress on arrival at the clinic had decreased physiologic arousal during the time the child was on the dental table waiting for the dentist to arrive. Both of these studies demonstrated that a therapy dog could be used in clinical settings to alleviate procedural distress in children.

The majority of studies of the benefits of companion animals have been conducted with the institutionalized elderly, both cognitively intact and cognitively impaired. One of the earliest landmark studies was conducted by nurses in the Veterans Administration system (Robb, Boyd, & Pristash, 1980). At different times a wine bottle, a plant, or a caged dog were placed in the day room of a long-term care division and socially interactive behaviors were measured. Of the three stimulus objects, the caged puppy produced the most dramatic increase in social behavior.

Two early studies addressed the effect of a dog on social interaction among nursing home residents, one on cognitively intact residents (Buelt, Bergstrom, Baun, & Langston, 1985) and the second on cognitively impaired residents (McArthur, Brunmeier, Bergstrom, & Baun, 1986). Within subject, repeated measures designs were used in both studies to measure socially interactive behaviors, which increased in the presence of a dog although the majority of the behaviors were directed at the dog.

Caged birds were placed in the rooms of elderly residents of skilled rehabilitation units, and before and after measures of depression, loneliness, and morale were completed on admission and after 10 days (Jessen, Cardiello, & Baun, 1997). The experimental group (bird) had a significant decrease in depression but not in morale or loneliness compared to the control group (no bird). Results of this study supported the use of companion animals other than dogs to lessen the negative effects of hospitalization in institutionalized elderly.

The use of a therapy dog with persons with Alzheimer’s disease (AD) has resulted in increased socialization (Batson, McCabe, Baun, & Wilson, 1998; Churchill, Safaoui, McCabe, & Baun, 1999), improved social behaviors (Kongable, Stolley, & Buckwalter, 1990) and decreased agitation (Churchill et al.). When a resident dog was introduced on an AD special care unit, the number of problem behaviors decreased and remained decreased across the entire 4 weeks of the study (McCabe, Baun, Speich, & Agrawal, 2002). Residents of AD special care units increased nutritional intake, which continued over 6 weeks when aquariums were introduced in the dining rooms. This increased nutritional intake resulted in increased weight gain among the residents (Edwards & Beck, 2002).

From the studies cited above it is clear that quantity of research on the health benefits of companion animals has increased steadily and that nurses have been active investigators in a multidisciplinary field. Published studies on human-animal interactions generally have had significant findings and support the use of animals to benefit the health of humans. Thus, there is some support for pet therapy, although a lot more research on the health benefits of companion animals still needs to be conducted.

Mara M. Baun

Phenomenology

Phenomenology refers to both a philosophical movement and a research method. The philosophical underpinnings of phenomenology are first summarized to provide a backdrop for what this methodology aims to ac-
complish. One of the philosophical tenets of phenomenology is intentionality, which refers to the inseparable connectedness of human beings to the world (Husserl, 1962). Subject and object are united in being in the world. One cannot describe either the subjective or objective world but only the world as experienced by the subject (Merleau-Ponty, 1964). The observer is not separate from the observed. One can know what one experiences only by attending to perceptions and meanings that awaken conscious awareness. Phenomenologists hold that human existence is meaningful only in the sense that persons are always conscious of something. Meaning emerges from the relationship between the person and the world as the person gives meaning to experiences. Phenomenology focuses on lived experience, that is, human involvement in the world.

Perception is one’s original awareness of the appearance of a phenomenon in experience (Merleau-Ponty, 1962). In phenomenology the process of recovering our original awareness is called reduction. Through phenomenological reduction one refrains from preconceived notions and judgments. Schutz (1973) described reduction as a process that is completed in degrees. Little by little, one’s layers of preconceived meaning and interpretation are peeled away, leaving the perceived world. The layers of meaning provided by a researcher’s knowledge and interpretation are preserved by being temporarily set aside—that is, bracketing. Through phenomenological reduction the world of everyday experience becomes accessible.

Edmund Husserl is considered the father of phenomenology. His is a descriptive phenomenology. He was interested in the epistemological question, How do we know about man? The goal of his phenomenology is the description of the lived world. Husserl’s student, Martin Heidegger, took phenomenology in a different direction. Heidegger (1962) was more interested in the ontological question, What is being? The goal of his phenomenology, called hermeneutic phenomenology, was understanding. This understanding is achieved through interpretation. Heidegger argued that it was not possible to bracket one’s being-in-the-world.

The phenomenological philosophies of Husserl and Heidegger have different methodological implications for nurse researchers. Husserlian phenomenology focuses on the analysis of the subject and object as the object appears through consciousness. Bracketing is essential in this descriptive phenomenology. In Heideggerian phenomenology, bracketing is not used because this phenomenology views people as being in the world. This notion of being-in-the-world allows researchers to bring their experiences and understanding of the phenomenon under study to the research.

As a research method, phenomenology is inductive and descriptive. Phenomenology provides a closer fit conceptually with clinical nursing and with the kinds of research questions that emerge from clinical practice than does quantitative research. The goal of phenomenological research is to describe the meaning of human experience (Merleau-Ponty, 1964). In its focus on meaning, phenomenology differs from other types of research, which may, for example, focus on statistical relationships among variables. Phenomenology tries to discover meanings as persons live them in their everyday world. It is the study of essences, that is, the grasp of the very nature of something (Merleau-Ponty, 1962). Essence makes a thing what it is; without it, the thing would not be what it is. The phenomenological approach is most appropriate when little is known about a phenomenon or when a fresh look at a phenomenon is indicated.

As a research method, there are various interpretations of the phenomenological method available, from which nurse researchers may choose. Examples of descriptive phenomenology include Van Kaam’s (1966), Colaizzi’s (1978), and Giorgi’s (1985) approaches. Van Manen’s (1990) method is a type of hermeneutic phenomenology. Specific examples of how these different methods were used in nursing research are provided.

Van Kaam’s (1966) phenomenological method of analysis was used by C. T. Beck
(1992a) in exploring the meaning of nursing students’ caring with physically/mentally handicapped children. The 36 nursing students’ written descriptions of their caring experiences yielded 199 descriptive expressions related to the phenomenon under study. The next step in Van Kaam’s method focuses on grouping these descriptive expressions into “necessary constituents,” which are moments of the experience expressed either implicitly or explicitly in the majority of the participants’ descriptions.

The following six necessary constituents of a caring experience between a nursing student and an exceptional child were revealed: authentic presencing, physical connectedness, reciprocal sharing, delightful merriment, bolstered self-esteem, and unanticipated self-transformation. In the final step in Van Kaam’s (1966) analysis the necessary constituents are synthesized into one description of the experience being studied. In Beck’s (1992a) study this description of caring between a nursing student and an exceptional child was as follows: “an interweaving of authentic presencing with physical connectedness and reciprocal sharing overflowing into delightful merriment, bolstered self-esteem, and an unanticipated self-transformation” (pp. 3–4).

An example of Colaizzi’s (1978) phenomenological method is found in Beck’s (1992b) study of the lived experience of postpartum depression. After reading and rereading the transcriptions of interviews with seven mothers, 45 significant statements that directly pertained to postpartum depression were extracted. Meanings were then formulated from each of these significant statements. Next in Colaizzi’s method is the clustering of these formulated meanings into themes. Eleven themes describing mothers’ experiences of postpartum depression emerged. These themes captured the women’s unbearable loneliness, uncontrollable anxiety attacks and obsessive thoughts, haunting fear that their lives would never return to normal, consuming guilt, inability to concentrate, loss of control of their emotions, insecurity, lack of positive emotions and previous interests, and contemplating death. Finally, these 11 theme clusters were integrated into an exhaustive description of the experience of postpartum depression.

Bennett (1991) used Giorgi’s (1985) method of phenomenological analysis to uncover the meaning of adolescent girls’ experience of witnessing marital violence. Interviews with five adolescent girls who had grown up in violent homes were read and reread to identify what Giorgi labeled as “meaning units.” These units were segments of the interviews that revealed some aspect of the phenomenon under study. These meaning units were then transformed into statements that expressed implicit or explicit meaning. Next, the transformed meaning units were synthesized into a summary of each adolescent’s experience of witnessing physical violence directed toward her mother by her father. Giorgi refers to this synthesis as the “situated level description.” The final phase of Giorgi’s analysis called for an integration of each of these individual descriptions into one “general level description” that was composed of shared themes and meanings. Bennett’s general level description of violence experienced included the following seven themes: (a) remembering, (b) living from day to day, (c) feeling the impact, (d) escaping, (e) understanding, (f) coping, and (g) resolving or settling.

Lauterback (1993) used Van Manen’s (1990) method of “doing” phenomenology to study the meaning of mothers’ experiences of the perinatal death of wished-for babies. The following four concurrent procedural activities in Van Manen’s method were incorporated in this study: turning to the nature of lived experience, existential investigation, phenomenological reflection, and phenomenological writing. Data analysis and interpretation of the data yielded the discovery of the essences in meaning of mothers’ experiences. These essential themes included (a) the essence of perinatal loss; (b) reflective pulling back, recovering, reentering; (c) embodiment of mourning loss; (d) the narcissistic inquiry; (e) the finality of death of the body; (f) living through and “with” death; (g) altering
worldviews; (h) death overlaid with life; and (i) falling and trying again.

Diverse clinical specialties of nursing such as maternal-child, gerontological, and medical-surgical nursing provide fertile ground for phenomenological research. These studies illustrate the breadth of applicability of this qualitative research method for nursing.

Cheryl Tatano Beck

Philosophy of Nursing

A philosophy of nursing lays the essential foundation for nursing knowledge. Whether explicitly articulated or just implied, all nursing knowledge begins and ends with a philosophy of nursing. A philosophy of nursing is important because it represents the values, visions, and convictions of nurses about what ought to be nursing’s central phenomena, that is, those phenomena that are both necessary and sufficient to provide a viable framework for the discipline and practice of nursing (Silva, 1997). Therefore, to generate nursing knowledge, nurses must understand what are considered to be nursing’s central phenomena. To better understand the underpinnings of nursing’s central phenomena, nurses must turn to the relationship between philosophy and philosophy of nursing.

Philosophy is a specific discipline that deals with ultimate or first-cause questions and phenomena that transcend other disciplines and cannot be answered by science or scientific investigation, for example, what is reality? Like philosophy, nursing is viewed as a specific discipline; thus, a philosophy of nursing should address big or ultimate questions about nursing and its phenomena. Examples follow:

What ought to be the basic phenomena of the discipline of nursing?
What are the metaphysical and ontological claims that underlie the phenomena of the discipline of nursing?
What are the moral claims that underlie the phenomena of the discipline of nursing?

What are the aesthetic claims that underlie the phenomena of the discipline of nursing?
How can the basic phenomena of the discipline of nursing be known?
How should the basic phenomena of the discipline of nursing articulate with basic phenomena of other human, helping-service disciplines?

As health care professionals living in the 21st century, distinct disciplinary boundaries are blurring rapidly and more interdisciplinary fields are emerging. As this trend continues, so too will the questions that constitute the essence of nursing philosophy. In summary, the preceding questions raised about nursing have metaphysical, ontological, moral, and aesthetic claims that emerge from philosophy but manifest themselves in phenomena related to nursing and ultimately to nursing philosophy.

As a philosopher, Rescher (2001) believes that human beings have an innate curiosity “rooted in the need-to-know” (p. 6) answers to life’s questions. To get at these answers, Rescher advocates philosophical inquiry as a methodology; this methodology includes a systematic process of “constructing a doctrinal system that answers . . . [life’s] questions in a coherent and comprehensive way” (p. 1). But, according to Rescher, there is more: philosophers not only must deal with the estimation of truth that involves errors of omission and/or commission but also must discern what constitutes “the data of philosophy” (p. 15).

Philosophical inquiry in nursing is one approach to advancing nursing knowledge. It follows the same method of philosophizing as described previously by Rescher (2001) but applies the method to substantive philosophical questions in nursing. The goal is coherent and comprehensive answers to nursing’s philosophical questions (e.g., Jacobs, B. B., 2001; Jones, T., 2003; Newman, 2002) with the best-fit estimation of truth (e.g., Pilkington & Mitchell, 2003). Like philosophical inquiry in philosophy, nurses who con-
duct philosophical inquiry in nursing must discern what constitutes the data of nursing.

Philosophy is not science, and nursing philosophy is not nursing science. But philosophy is the foundation of science, and nursing philosophy is the foundation of both nursing science (i.e., the body of nursing’s scientific knowledge) and nursing research (e.g., the process of obtaining not only nursing’s body of scientific knowledge but also the process of obtaining knowledge derived from scholarly critical analyses).

Implicit in nursing research are assumptions about human beings (i.e., study subjects or participants), about selected phenomena of the discipline (e.g., variables), and about how the selected phenomena can be known (i.e., the research method). In addition, in qualitative research the meaning or artistry of the selected phenomena is often addressed (e.g., hermeneutics, photography). Finally, regardless of whether the research is quantitative, qualitative, and/or scholarly critical analysis, it must be ethical. Thus, all research grounded in nursing contains explicit or implicit philosophies of nursing that determine research approaches.

Future directions about philosophies of nursing and about nurses and nurse researchers include the following: (a) nurses need greater knowledge about and appreciation for the discipline of philosophy; (b) nurse researchers must interact regularly with nurse philosophers to grasp more fully that a philosophy of nursing provides a foundation for nursing science and other nursing knowledge; (c) nurses must commit themselves in greater numbers to philosophical inquiry as a legitimate method of obtaining nursing knowledge; and (d) nurses must prepare themselves for the blurring of distinct disciplinary boundaries as more interdisciplinary fields emerge.

MARY CIPRIANO SILVA

Physical Restraints

A physical restraint is any device or object attached to or adjacent to a person’s body that cannot be removed easily and restricts freedom of movement. Bilateral full-length siderails and some types of furniture are also considered restraints when used to limit movement. Although this entry focuses mainly on physical restraints, it is important to keep in mind that these devices are often used in conjunction with psychopharmacologic drugs. When such drugs are given for the purposes of discipline or convenience and are not required to treat specific medical or psychiatric conditions, they are considered chemical restraints.

The prevalence of physical restraints in non-psychiatric settings, estimated in 1989 to affect 500,000 elderly persons daily in hospitals and nursing homes, led many to conclude that a restraint crisis existed. High prevalence in the United States was sharply contrasted with what at the time appeared to be lesser use in several countries in Western Europe. The historical antecedents for these differences appeared related to American beliefs that were embedded by the end of the 19th century: restraint use was therapeutically sound, necessary to control troublesome behavior, and prevented tragic accidents and injuries.

For nearly 100 years those beliefs were largely unchallenged; debate concerning the efficacy of physical restraint was limited, and alternative interventions were rarely considered. The efforts of advocacy groups and committed clinicians, change in nursing home regulation and standards for accreditation of hospitals, warnings from the Food and Drug Administration (FDA), and research demonstrating successful restraint reduction have forced a complete reexamination of their use. Although prevalence has declined in U.S. nursing homes to approximately 8.86%, restraint use and the problems associated with it remain a global concern.

Physical restraints are applied in hospitals and nursing homes primarily for three reasons: fall risk, treatment interference, and behavioral symptoms. To date, no scientific basis of support demonstrates the efficacy of restraints in safeguarding patients from injury, protecting treatment devices, or alleviat-
ing such behavioral symptoms as wandering or agitation. Several recent studies, in fact, suggest relationships between physical restraints and falls, serious injuries, or worsened cognitive function (Capezuti, Strumpf, Evans, Grisso, & Maislin, 1998).

Nevertheless, health care professionals and other caregivers see few alternatives to restraint use in some situations. Misplaced fears about legal liability, lack of interdisciplinary discussions about decisions to restrain, and staff perceptions about individual behaviors also influence restraint practices. Insufficient staffing levels and the costs of hiring additional employees have long been regarded as obstacles to minimal use of physical restraints. Hospital studies offer indirect links between staffing levels and restraint use by demonstrating that weekend days and night shifts are the most frequent times when restraints are used (Bourbonniere, Strumpf, Evans, & Maislin, 2001; Whitman, Davidson, Sereika, & Rudy, 2001). Several reports of restraint reduction in nursing homes and one clinical trial show that prevalence of physical restraints can be significantly reduced without increasing serious injuries or hiring more staff (Evans, L. K., et al., 1997).

Data show that caring for nursing home residents without restraints is less costly than caring for residents who are restrained (Phillips, C. D., Hawes, & Fries, 1993).

Hospitals and nursing homes often do not have personnel with expertise in aging or with the requisite skills for assessing and treating clinical problems specific to older adults. Studies provide promising evidence that a model of care using advanced practice nurses specializing in geriatrics can reduce restraint use in nursing homes and hospitals through staff education and consultation (Evans, L. K., et al., 1997; Sullivan-Marx, Strumpf, Evans, Capezuti, & Maislin, under review).

Continued use of physical restraints is paradoxical in view of mounting knowledge about their considerable ability to do harm. Physical restraints are known to reduce functional capacity and exert physical and psychological effects (Castle & Mor, 1998; Evans, L. K., & Strumpf, 1989). Furthermore, restraint use can lead to accidental death by asphyxiation (Miles, S. H., & Irvine, 1992). Persons who are likely to be restrained are usually those of advanced age who are physically and mentally frail, prone to injury and confusion, and experiencing invasive treatments. The evidence is compelling that prolonged physical restraint further contributes to frailty and dysfunction.

Restraint-free care can be accomplished through implementation of a range of alternative approaches to assessment, prevention, and response to the behaviors routinely leading to restraint. For such practices, however, changes in fundamental philosophy and attitudes among institutions and caregivers must occur. In settings where restraints have been reduced, there is strong emphasis on individualized, person-centered care; normal risk taking; rehabilitation and choice; interdisciplinary team practice; environmental features that support independent, safe functioning; involvement of family and community; and administrative and caregiver sanction and support for change. The presence of professional expertise, particularly expert nurses and physicians with education and skill in geriatrics, is crucial for sustained cultural change.

Although legislation and other forms of external regulation or control do not in and of themselves change beliefs or entirely alter entrenched practice, the Nursing Home Reform Act, part of the Omnibus Budget Reconciliation Act (OBRA) of 1987 (enacted in 1990), helped to raise standards in nursing homes. The FDA, in response to the known risks of physical restraints and reports of restraint-related deaths, mandates that all devices carry a warning label concerning potential hazards.

Following a decade of emphasis on restraint reduction/elimination in nursing homes, clinicians, researchers, and regulators have recently focused attention on these practices in acute care settings. As with nursing homes, the Joint Commission on Accreditation of Healthcare Organizations and the Centers for Medicare and Medicaid Services define restraint use as both physical and
chemical. Standards mandate that restraints be used only to improve well-being in cases where less restrictive measures have failed to protect the patient or others from harm. In addition, continual individualized assessment and reevaluation of the patient by clinicians and consultation with the patient’s own provider must occur with restraint use. Direct care staff must also be trained in proper and safe use of restraining devices.

Current approaches to restraint reduction vary along a continuum from promotion of restraint-free care to an attitude of tolerance for restraint use under certain circumstances. To some extent, successful reduction of physical and chemical restraints in nursing homes underscores the need to achieve the same changes in hospitals, where a disproportionately high incidence of iatrogenesis occurs, much of it exacerbated by the use of physical restraints and adverse reactions to psychoactive drugs. The resulting complications—especially delirium, pressure ulcers, infections, and fall-related serious injuries—can add dramatically to the cost of care by contributing to further loss of function.

Although professional organizations in nursing and medicine have endorsed nonuse of physical restraints and appropriate use of psychoactive drugs as the standard of care in all health care settings, the intensity of debate surrounding physical restraint use in hospitals has escalated (Maccioli et al., 2003). Clinicians caring for specialty populations, such as those found in critical care, trauma, neurology and neurosurgery, and hematology/oncology, are confronted with the need to identify, test, and implement interventions that reduce reliance on physical restraints. A standard of least restrictive care will challenge professional caregivers to use comprehensive assessment to make sense of individual behaviors and to employ a range of interventions that enhance physical, psychological, and social function, as well as to acknowledge and affirm the uniqueness and dignity of the older person.

**Physiological Monitoring**

Physiological monitoring is used by nurse scientists to measure biological functioning in living organisms. Generally, it refers to data collected through an interface of technological instrumentation with a living organism. Technological instrumentation can be relatively simple, such as a thermometer, or as complex as combined hemodynamic and clinical laboratory instrumentation used to measure oxygen utilization in the critically ill patient. Physiological monitoring is used to examine both normative functions (e.g., homeostasis) and disordered responses (e.g., illness and related manifestations). Physiological monitoring occurs in vivo and in vitro, among animal models, in laboratory settings, and in clinical practice areas. Information about physiological parameters promotes understanding about the phenomena with which nurses are concerned: health-supporting and health-restoring human responses.

A variety of physiological variables are measured by nurses: (a) electrical potentials of the brain, heart, laboring uterus, and muscle; (b) pressures in arteries, veins, lungs, mouth, esophagus, bladder, vagina, uterus, and brain; (c) sound (mechanical) waves in the ear and heart; (d) temperature and the concentration of gases in the lungs and blood; (e) physical symptoms such as size and color of bruising, stool, and wounds; and (f) serum levels of hormones, coagulation factors, and molecular proteins that influence local and systemic responses to injury, illness and infection. The most common physiological measures reported in nursing research are blood pressure, heart rate, weight, and temperature. Monitoring of physiological measures can be either direct or indirect, can be utilized continuously or at a particular point in time, and can include physical, electronic, and biochemical devices. Physiological monitoring devices are found in the acute care setting, home health care settings, and outpatient and surgical environments and offer a rich data source for clinical research.

Research by nurses using physiological monitoring has increased steadily since the
In the 1980s (Sechrist & Pravikoff, 2002), increased numbers of nursing scientists are prepared with a strong theoretical and experiential base for designing physiological studies. One aspect of their work has been to evaluate the accuracy, selectivity, precision, sensitivity, and error of physiological measures so that reliability and validity are supported. Another important focus of physiological monitoring has been to link physiologic responses to patient/client outcomes studies. A third and relatively new area of investigation is the examination of biomarkers, linking physiological monitoring with cellular and molecular responses to illness and interventions. Examination of changes that occur as a consequence of nursing practice has produced a broad range of research, as evidenced by the variety of physiological studies listed by CINAHL and PubMed in the past 10 years.

Chris Winkelman

Pilot Study

A pilot study is a smaller version of a proposed or planned study that is conducted to refine the methodology for a larger study. A pilot study uses subjects, settings, and methods of data collection and data analysis similar to those of a larger study.

It is recommended that all large-scale studies have either pilot work or other preliminary work as evidence of feasibility of the project and to demonstrate the competence of the investigator with the area of study. Feasibility issues that might be addressed in a pilot study include the availability of subjects and estimating the time required for recruitment of subjects, the conduct of the investigation, and the cost of the study. Particularly when planning studies with populations that may not be easily available or accessible, a pilot study is an opportunity to develop or refine sampling methods and to evaluate the representativeness of a sample.

Preliminary work in the form of a pilot study provides an opportunity to identify problems with many aspects of study design. One important design issue that can be evaluated during the pilot work is determining the number of data collection points and the optimal time between phases of data collection. Pilot work can be used to develop, test, or refine a study protocol, including the treatment or intervention to be used in an experimental or quasi-experimental study. Sufficient pilot work is necessary to support the efficacy of an intervention prior to proposal submission for a large-scale intervention study. During a pilot study extraneous variables that had not been considered in the design may become apparent, and methods to control for them can be introduced when the larger study is designed.

Pilot work also allows the development or refinement of data collection instruments, including questionnaires and equipment. The performance of instruments with a particular sample under specific conditions also can be evaluated in the pilot project. When collecting quantitative data, the reliability and validity of instruments and the ease of operation and administration can be evaluated prior to data collection in a large-scale study. This is an important step whether the data collection instruments are interview schedules, questionnaires, computers databases, or equipment to gather biophysical data. For example, during pilot work, questionnaires can be evaluated for clarity of instructions, wording of questions, reading level, and time required for completion. For qualitative studies, pilot work may be important for gaining experience in interacting with the sample and with aspects of data collection, coding, and analysis.

The results of a pilot study are likely to be significant for the larger proposed study. If the pilot study is of sufficient size, estimates about the relationships between variables and of effect sizes can be made. This is essential not only for statistical power analysis but for a better understanding of the phenomena under study. Pilot studies often provide important insights into the problem being investigated and may lead to reconceptualization.
of the problem or refinement of the research questions.

Carol M. Musil

Population Health

The term population health is fairly new. Current emphasis on improving health outcomes, eliminating health disparities, and reducing health care costs amplifies its importance, but a single accepted definition of population health has yet to emerge. Szreter (2003) traces the origin of the concept of population health back to an historic 18th century debate over the relationship between economic growth and human health. In an article titled *Producing Health, Consuming Health Care*, R. G. Evans and Stoddart (1990) merged concepts and principles from economics and epidemiology to support the idea that health is determined by multiple factors. In 1997 in a book titled *Purchasing Population Health: Paying for Results*, Kindig defined population health as “the aggregate health outcome of health adjusted life expectancy (quantity and quality) of a group of individuals, in an economic framework that balances the relative marginal returns from multiple determinants of health” (p. 47). Kindig’s definition proposed a unit of measure for population health and underscored a relationship between economics and health.

In 2001, two models for implementing population health were published, one in Canada and the other in the United States. In July 2001, Health Canada published a draft document titled *The Population Health Template: Key Elements and Actions That Define a Population Health Approach*. The publication consolidated current understandings of population health and outlined procedures and processes for implementing a population health approach. The Health Canada template defined population health as “the health of a population as measured by health status indicators and as influenced by social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services” (Health Canada, p. 2). The population health template also identified eight key elements of a population health approach: (1) focusing on the health of populations, (2) addressing the determinants of health and their interactions, (3) basing decisions on evidence, (4) increasing upstream investments, (5) applying multiple strategies, (6) collaborating across sectors and levels, (7) employing mechanisms for public involvement, and (8) demonstrating accountability for health outcomes (Health Canada).

The Department of Defense Tricare Management Activity (DoDTMA) published a *Population Health Improvement Plan and Guide* in December 2001. The guide adopted Kindig’s definition of population health and outlined an approach to population health improvement focused on balancing awareness, education, prevention, and intervention activities to improve the health of a specified population (DoDTMA, 2001). Much like the Health Canada template, the DoDTMA guide identified several process steps for population health improvement: (a) identifying the population, (b) forecasting demand, (c) managing demand, (d) managing capacity, (e) implementing evidence-based primary, secondary, and tertiary prevention, (f) community outreach, and (g) analyzing performance and health status.

In 2003, McAlearney published a model for population health in a book titled *Population Health Management: Strategies to Improve Outcomes*. The author used the term “population health management” to describe a variety of approaches developed to foster health and quality-of-care improvements while managing costs. McAlearney outlined several major steps for implementing population health management programs: targeting the program, selecting the strategies, implementing and managing the program, and integrating critical factors.

In March of 2003, in an article titled *What is Population Health?*, Kindig and Stoddart attempted to distinguish population health
from public health, health promotion, and social epidemiology. The authors also set out to determine if population health was a field of study of health determinants or a concept of health. Following a critique of existing definitions and understandings of population health dating back to the early 1990s, the authors concluded that population health is concerned with both the definition and measurement of health outcomes and the roles of determinants. Kindig and Stoddart defined population health as the health outcomes of a group, including the distribution of the outcomes within the group, and argued that the field of population health included health outcomes, patterns of determinants of health, and interventions and policies that link outcomes with determinants.

Current understandings and definitions of population health emphasize the link between multiple determinants of health and health outcomes. Population health is focused on improving the health status of populations, enhancing health care quality and access, and decreasing costs. A population health approach targets entire populations; intervenes with families, communities, systems, and individuals; recognizes and emphasizes multiple determinants of health; incorporates primary, secondary, and tertiary prevention; and includes ongoing assessment, monitoring, and improvement.

SANDRA C. GARMON BIBB

Populations and Aggregates

In a very broad sense the term population refers to a collection of entities that have one or more characteristics in common. According to Kendall and Buckland (1960), “in statistical usage the term ‘population’ is applied to any infinite collection of individuals. It has displaced the older term ‘universe’ . . . it is practically synonymous with ‘aggregate’ and does not necessarily refer to a collection of living organisms” (p. 223). The conception of population is basic to an understanding of inductive or inferential statistics. Stated succinctly by Blalock (1960), “the purpose of statistical generalizations is to say something about various characteristics of the populations studied on the basis of known facts about a sample drawn from that population or universe” (p. 89). In statistics, population characteristics are called parameters and are denoted by Greek letters; sample characteristics, called statistics, are denoted by Roman letters. According to Blalock, in inductive statistics “it is the population, rather than any particular sample, in which we are really interested.” As a matter of convenience, a sample is selected but the goal is “practically always to make inferences about various population parameters on the basis of known, but intrinsically unimportant sample statistics” (p. 90). The underlying foundation for making inferences from samples to the population is the mathematical theory of probability.

Within the health field, particularly in public health, the disciplines of epidemiology and biostatistics, and the nursing specialization of public health nursing, the term population usually refers to biological entities such as people, animals, or microorganisms that hold characteristics in common. Population has a very prominent position in epidemiology. In discussing the classical understanding of epidemiology, J. N. Morris (1964) referred to it as “the study of the health and disease of populations” (p. 4). More recently, Mausner and Kramer (1985) defined epidemiology as “the study of the distribution and determinants of diseases and injuries in human populations” (p. 1).

Historically, public health specialists such as health officers focused on populations and subpopulations as the target for planning, service programming, and evaluation efforts. Although public health nurses provided clinical services in public health programs directed to target populations such as children under 6 years or prenatal clients, predominant focus was clinical, at the level of the patient or the family. The concept of using a population or aggregate approach to the
practice of public health nursing first began to be seriously discussed in the literature in the 1970s (Williams, C. A., 1977). The conceptual shift from a focus on individual patients, the thrust in the clinical preparation of nurses, to a focus on populations, which is the concern of public health, can be difficult. However, it is necessary to understand public health and the specialization of public health nursing.

Taking a population approach to decision making in health care, that is, defining problems and proposing solutions for a population or aggregate, may facilitate health services and care delivery research and the utilization of research in practice for two reasons. First, such an approach involves obtaining data on each member of the population and summarizing it in meaningful ways. Adopting strategies and methods used by nurse researchers, epidemiologists, and others who study community-based or clinical populations may be used. This process may be sufficiently systematic and rigorous to make a contribution to the research literature. Second, a population approach to decision making is highly compatible with the empirical thinking of researchers.

Researchers study samples of populations with specific characteristics. The extent to which a finding in a sample from a particular population can be predicted in another can be assessed primarily by determining the comparability between the populations. If the individuals in a clinical or community-based program were identified as a population or subpopulation, with key characteristics in common, rather than unique individuals, the program population could be compared with another studied population.

Although a population-focused approach has traditionally been central to public health practice, the spread of capitated managed care has precipitated a growing interest in the concept of populations and decision making at the population level throughout the health care industry. The population emphasis has many positive implications for health services and care delivery research and for a more systematic, rational, and data-based approach to decision making in the health care system.

**Postpartum Depression**

Postpartum depression (PPD) is an important women’s mental health problem because of its timing, prevalence, and associated risks. PPD is believed to affect approximately 13% of women following delivery; however, when self-report depression measures are used to identify women with milder symptom levels, higher percentages are reported. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association, 2000), diagnostic criteria specify onset within 4 weeks postpartum. The most frequent symptoms are feelings of inadequacy, sadness, fatigue, anxiety, worry, compulsive thoughts, and diminished functioning that can occur from within 2 weeks postpartum to beyond 1 year. Women experiencing PPD can experience symptoms severe enough to require a combination of pharmacological interventions and either short- or long-term counseling and therapy and even hospitalization. Nonetheless, after a comprehensive review of PPD treatment literature, Boath and Henshaw (2001) concluded that treatment efficacy has not been clearly established, with recovery varying from 2–3 months to as long as 2 or more years.

PPD is distinguished from commonly experienced “postpartum or maternity blues” and postpartum psychosis. Postpartum blues is characterized by onset during the first 2 weeks after delivery, presence of mild depressed symptoms with typically rapid resolution, and prevalence as high as 80% in the United States. In addition, postpartum blues wane without need for intervention. Postpartum psychosis, in contrast, is a rare (1-2/1,000) and severe disorder. Symptoms may emerge as early as 1 month before delivery,
and rapid postpartum onset within 4 weeks postpartum is characteristic. Hallucinations, delusions, and paranoia are hallmarks and can be associated with suicidal and homicidal ideation. Therefore, risk of harm to the infant is a major concern with psychosis and with severe PPD when cognitive distortions are present (American Psychiatric Association, 2000). A more recently identified disorder, postpartum obsessive-compulsive disorder (OCD) (Sichel & Driscoll, 1999), is not specified within the diagnostic nomenclature as a recognized postpartum syndrome. However, expert practitioners have described heightened vigilance about the possibility of harm to the baby as characteristic of postpartum OCD.

A range of risk factors have been identified with the development of PPD, including a history of depression, difficult infant temperament, marital or partner relationship problems, child care stress, low self-esteem and poor social support. Researchers have extended examination of PPD to include samples from various cultures and countries around the world. For example, a multisite study involving 892 women from nine countries was designed to compare differences in postpartum depressive symptomatology across samples at 4–6 weeks and 10–12 weeks postpartum (Affonso, De, Horowitz, Andrews, & Mayberry, 2000). Average depression scores for women from countries in which postpartum cultural traditions are practiced were significantly higher than depression scores for women from Europe, Australia, and the United States—“western” industrialized countries without such widespread rituals. In focus groups conducted in each of the countries, similar patterns of symptoms were described (Horowitz, J. A., Chang, Das, & Hayes, 2001). Fatigue and pain were common physical symptoms, with irritability, anxiety, loneliness, worrying, indecisiveness, and poor concentration being emotional and cognitive symptoms. Role and relationship conflicts were described within the context of cultural variations. These findings demonstrate that additional research is needed to explore postpartum cross-cultural adjustment problems and to test strategies for relieving distressing symptoms. Furthermore, a growing body of literature indicates that PPD affects women around the world and challenges earlier assumptions that PPD is a culturally based syndrome primarily associated with westernized countries without widespread postpartum traditions (Affonso et al., 2000; Posmontier & Horowitz, 2004).

PPD disrupts maternal-infant interactions and children’s cognitive and emotional development. Withdrawn, disengaged, and intrusive maternal behavior patterns may result in fussy, aggressive, less affectionate, and less responsive infants. Reduced vocalization and slower neurological growth and motor skill development have been documented among infants of depressed mothers (Abrams, Field, Scafidi, & Prodromidis, 1995; Field, T., 1995; Tronick & Weinberg, 1997). In response to growing evidence of PPD’s negative effects on infant development, investigators have begun to focus on evaluating interventions to promote improved mother-infant relationships. One clinical trial designed to test the efficacy of an interactive coaching approach delivered by a trained home visiting nurse produced promising findings (Horowitz, J. A., Bell, et al., 2001). The intervention had a positive effect on maternal-infant responsiveness among mothers. According to the nurse investigators, subsequent research is needed with diverse samples to test additional interventions to reduce negative effects of maternal depression on child development. Inclusion of partners or other family members to examine family processes related to maternal depression was also recommended (Horowitz, J. A., Bell, et al.).

Nurse investigators are also involved in testing better tools for early detection of PPD. The Postpartum Depression Screening Scale (PDSS) (Beck & Gable, 2001) is a promising, 35-item self-report instrument to identify women who are at high risk for postpartum depression. Given the importance of PPD as a clinical problem, mental health evaluation of all postpartum women should be standard care.
Recommendations for future research directions are: (a) a screening feasibility project to demonstrate ways to implement cost-effective early PPD identification; (b) clinical trials to test non-pharmacologic treatments for PPD and interventions to enhance the quality of mother-child interaction; (c) longitudinal studies to examine the course of maternal depression over time; (d) family research to explore consequences of PPD on family health and test family-oriented interventions; and (e) cross-cultural studies and inclusion of diverse samples within the United States to document prevalence rates, discern risk and protective factors, and test culturally relevant interventions.

LINDA J. MAYBERRY
JUNE ANDREWS HOROWITZ

Pregnancy

Nurses continue to conduct research in various areas related to pregnancy. Predominant areas of inquiry include nutrition/obesity/gestational weight gain, physical activity and exercise during pregnancy, the experience and symptoms of pregnancy, HIV prevention and care, preventing negative consequences of adolescent pregnancy, care during labor and birth, and health promotion.

Nutrition, obesity, and gestational weight gain can impact birth outcomes and how well a woman feels during pregnancy. Nutrition research has focused on identifying optimal nutrition during pregnancy to promote fetal growth and development while preventing excessive maternal weight gain (Bechtel-Blackwell, 2002; Wiles, 1998). Excessive weight gain during pregnancy can contribute to postpartum weight retention and long-term weight gain and later obesity (Walker, 1996). Adequate nutrition during pregnancy influences maternal weight gain. Pattern of weight gain during pregnancy is significant. Nurses have been instrumental in researching patterns of gestational weight gain associated with optimal birth outcomes.

Obesity results from an imbalance of energy. Over time, when more nutrients are consumed than burned, weight gain occurs. Over time excessive nutrient intake results in weight gain and obesity. Excessive weight gain during pregnancy, particularly over multiple pregnancies, contributes to overweight and obesity in women. Women who begin pregnancy overweight are at higher risk for increased gestational weight gain, postpartum weight retention, and complications of pregnancy, including malpresentation, arrested labor, and instrumental delivery.

Physical activity and exercise have been another predominant theme of nurse researchers who study pregnancy. While it has been known for quite some time that exercise and physical activity have benefits at every life stage, exercise research during pregnancy has expanded in recent years. This expansion is partly due to the problem of obesity and excessive weight gain during pregnancy, but also because exercise has been a useful modality in health promotion and disease prevention efforts. For example, pregnant women who exercise on a regular basis have improved birth outcomes and more energy. Recent investigations have focused on the use of exercise during pregnancy to prevent and treat hypertensive disorders and to keep weight gain within normal limits, as recommended by the Institute of Medicine (IOM) based on prepregnancy body mass index (BMI).

Symptoms of pregnancy and their relief are another focus for nurse researchers. Maloni and others have extensively investigated the symptoms of women placed on bed-rest during pregnancy (Maloni, Kane, Suen, & Wang, 2002; Maloni & Schneider, 2002; Maloni, Brezinski-Tomasi, & Johnson, 2001). Nausea and vomiting during pregnancy have also been investigated (Steele, N. M., French, Gatherer-Boyles, Newman, & Leclaire, 2001; O’Brien, Evans, & White-McDonald, 2002; Zhou, O’Brien, & Soeken, 2001). F. H. Chou, Lin, Cooney, Walker, and Riggs (2003) found that depressive symptoms were correlated with nausea and vomiting and that social support was negatively related
to nausea and vomiting. Depressive symptoms were also found to be correlated with fatigue; however, the investigators did not examine which symptom appeared first. Other investigators have examined the pregnancy experience among various groups, including adolescents with a planned pregnancy (Montgomery, 2000, 2001, 2002), adolescent mothers, women with a high-risk pregnancy, women with pregnancies conceived via in vitro fertilization, women pregnant with multiples, pregnancy after previous loss, and the experiences of new fathers (Finnbogadottir, Svalenius, & Persson, 2003). In addition, pregnancy and childbirth experiences of women of various cultures have been investigated.

HIV prevention and care during pregnancy have also been investigated by nurse researchers. HIV-positive pregnant women are a diverse group. Many women discover their HIV status following conception. However, with increasing frequency women who are HIV-positive are planning to become pregnant. Nurse investigators have examined HIV-positive women’s desire for pregnancy despite their HIV disease and found that women do not wish to give up the experience of motherhood and that they have a healthy focus on living life and not limiting themselves based solely on their HIV diagnosis (Sowell & Misener, 1997). Women also noted that with current medical advances their chances of having a healthy pregnancy and uninfected infant are better than ever before. HIV-positive women need a tremendous amount of support and care during pregnancy and beyond. Nurses have taken the lead in identifying the specific needs and care for this group of women.

While the rates of adolescent pregnancy have decreased in recent years and continue to decline, there are still nearly 1 million adolescents who become pregnant each year. Nurses have investigated various support and education programs to assist these young women with pregnancy and the transition to motherhood (Nuguyen, Carson, Parris, & Place, 2003). Successful programs begin during pregnancy and continue through the child’s early years. The focus of these programs is health promotion and teaching, illness prevention, social support, accessing services, and networking (Koniak-Griffin et al., 2003). Nurse researchers have also examined HIV prevention among pregnant adolescents who are often at risk because they lack resources, social status, and knowledge to protect themselves (Lesser, Oakes, & Koniak-Griffin, 2003).

Nurse researchers have investigated various aspects of care during labor and birth, including labor and pushing management among women with epidural anesthesia (Mayberry, Strange, Supplee, & Gennaro, 2003), use of birth plans (Lundgren, Berg, & Lindmark, 2003), labor support by nurses and others, cultural variations in the labor and birth experience (Callister, 2004), childbirth education strategies, and pain reduction with interventions such as ice (Waters & Raisler, 2003). M. R. Sleutel (2002) developed and tested the Labor Support Scale with positive results.

Additional areas related to labor and birth that need to be examined include excessive rates of labor inductions present in many hospitals throughout the U.S., Cesarean sections on demand, implications of increased physician malpractice insurance leading to few physicians attending deliveries and how this affects nursing care, birth outcomes, and the practice of certified nurse midwives (CNMs). Complementary and alternative therapies to relieve labor pain also warrant additional research by nurses.

Pregnancy is one of the few instances in which health promotion efforts can have a direct and immediate impact. Various nurse researchers have investigated health promotion during pregnancy in both a general sense of health promotion behaviors and specific behaviors, such as nutrition in pregnant adolescents (Symon & Wrieden, 2003), physical activity, smoking cessation (Maloni, Albrecht, Thomas, Halleran, & Jones, 2003), and drug and alcohol avoidance. Considerable research effort has also focused on prevention of abuse and violence during pregnancy (Denham, 2003).
The vast majority of research with pregnant women has been focused on birth outcomes, including rates of live birth, prematurity, low birth-weight, congenital malformations, and other complications of pregnancy, labor, and/or birth.

**Kristen S. Montgomery**

**Premenstrual Syndrome**

Until the 1970s, misogynist views of menstrually-related experiences prevailed. Notably, an article written by a Johns Hopkins University physician, Erle Henrikson, in 1948 described premenstrual tension as the “Bitch Syndrome.” After “carefully observing” many nurses and other “perfectionistic” women, Henrikson declared in his study that women who were both high achievers and “not satisfied” with their work or roles had more severe symptoms (Speroff, 1988). With the advent of the 1970s, critique and counterpoint arguments to negative classification of perimenstrual experiences were beginning to be published. Feminist scholars recommended the use of the word “change” over “symptom,” as in “premenstrual changes” (Delaney, Lupton, & Toth, 1976; Parlee, 1973). In 1979, feminist epidemiologist and nurse researcher Nancy Woods first used the term “premenstrual symptoms or experiences” (Woods & Hulka, 1979). In the mid-1980s, professional medical organizations in the United States and United Kingdom met to define premenstrual syndrome (PMS) for clinical trials and scientific research. The published proceedings established the medical basis for the presentation and clinical existence of PMS as a disease classification (Dawood, McGuire, & Demers, 1985; Halbreich, 1997). From this point forward, misogynist labeling shifted to medical diagnosis. Notably, psychiatry and the Biological Psychiatry Branch of the National Institute of Mental Health provided the leadership in biomedical research (Rubinow & Schmidt, 1995).

In 1986, the Board of Trustees of the American Psychiatric Association (APA) voted to include a PMS label as a diagnosis in the research appendix of the *Diagnostic and Statistical Manual*, 3rd edition (DSM-IIIR) (American Psychiatric Association, 1986). Although the diagnostic term, Late Luteal Phase Dysphoric Disorder (LLPDD), was included in the 1987 DSM-IIIIR in the “category requiring further study” (or research appendix), it was given a diagnostic code, title, list of symptoms, and cutoff points exactly like diagnostic categories in the main text of the DSM that is supported by scientific evidence. In spite of the recommendation of its own subcommittee that there was little substantive science to support a diagnosis of premenstrual mental illness, the APA included a revised label of premenstrual dysphoric disorder (PMDD) in the DSM-IV research appendix and in main text under Depressive Disorders. While symptom assessment requires one of four mood symptoms and four physical or somatic symptoms to qualify for the PMDD diagnosis, only antidepressant drugs were recommended for psychiatric treatment.

It has been argued that the controversy over the labeling and treatment of PMS and its symptoms was not restricted to conflict between feminists and the APA, nor was it a natural result of scientific progress. Rather, using terms such as PMS or PMDD gives a diagnostic (dysfunctional) label to premenstrual experiences and ignores the underlying social causes, allowing the status quo to be maintained. Subsequently, women internalize patriarchal beliefs about femininity and pathology and blame their individual biology for their feelings of dissatisfaction, rather than challenge the cultural traditions by looking for a political or social solution.

So what’s all of the fuss about a label? More than an issue of semantics, the terminology we use to describe women’s experiences influences social, political, and medical institutions. Classification of health-related signs and symptoms generally leads to the identification of diagnostic criteria but is ultimately a social process, and as such it is influ-
enced by multiple social forces. Unfortunately, biomedical language has predominated with little attention paid to alternative perspectives from other disciplines and, more importantly, from a woman’s perspective.

Nursing research has independently and collectively, with colleagues in the Society for Menstrual Cycle Research (SMCR), been at the forefront of a woman-centered agenda for understanding menstrual cycle experiences as both normative and illness processes. One early example of an outcome of the cross-disciplinary SMCR conferences was the 1981 Guidelines for Non-Sexist Research (Psychology of Women Division). These guidelines, sponsored by the SMCR, were a result of 2 years of effort by a national task force of psychologists appointed by Division 35 (Psychology of Women Division of the American Psychological Association, 1981) of the American Psychological Association and endorsed by them in 1981.

A long history of funded research programs also demonstrates the scope, sophistication, and scientific rigor of nursing research in these areas. Since 1986, the National Institute for Nursing Research has been actively supportive of research addressing the cause and consequences of menstrual cycle and menopause-related health conditions (Reame, 2001). Nurse researchers have focused on comorbidities related to menstruation or menstrual cycle phase, such as sleep function and disturbance, fatigue, fibromyalgia, gastrointestinal function and irritable bowel syndrome, brain function and neuro-cognition, depression, mood states, stress responsiveness, circadian rhythms, pain and analgesic responses, bone biomarkers and osteoporosis, HIV and AIDS, violence and post-traumatic stress syndrome, as well as chronic diseases such as heart disease variability, diabetes, epilepsy, cancer, and arthritis (Golding, Taylor, Menard, & King, 2000; Taylor, D., 1999; Woods, Lentz, Mitchell, & Kogan, 1994; Shaver, Giblin, Lentz, & Lee, 1988; Heitkemper et al., 1995; Reame, 2001; Williams, 2003).

Attention to the context in which menstruation occurs has been an important part of nursing research into the menstrual cycle. Studies have documented the importance of stressful life circumstances in association with symptoms, as well as the importance of socialization for menstruation. Nurse researchers have made clear the consequences for women of a social context in which menstrual symptoms such as PMS are invalidated or used to invalidate women’s complaints and abilities. Nancy Woods with her team, first at the University of North Carolina and later at the University of Washington, developed and tested multivariate models of “perimenstrual symptoms and experiences” that included sex role orientation, socialization, social context, stress, well-being, health status, health practices, and health seeking (Brown, M. A., & Woods, 1986; Brown, M. A., & Zimmer, 1987a, 1987b; Macdougall, 2000; Mitchell, E., Woods, Lentz, & Taylor, 1991; Mitchell, 1999; Mitchell, E. S., Woods, & Lentz, 1987, 1993; Mitchell, E. S., Woods, Lentz, Taylor, & Lee, 1992; Mitchell, E. S., Woods, & Mariella, 2003; Oleson & Woods, 1986; Taylor, D. T., & Woods, 1991; Taylor, D., Woods, Mitchell, & Lentz, 1987; Woods, 1985). Other nurse investigators have looked beyond negative mood and personal variables to consider positive feelings and experiences, generational differences of mood and physical experiences across social, monthly and seasonal cycles, and development of biopsychosocial conceptual models that clarify the limitations of the biomedical model and provide a basis for hypothesis testing (Cahill, 1998; Costos & Gleason, 1995; Lee, S., 2001; Taylor, D., 1990; Taylor, D., & Woods, 1991).

As a normative experience, nurses have carefully described the experience of women across menstrual cycle phases and transitions. Patterns of perimenstrual symptoms, including Premenstrual Syndrome (PMS), Premenstrual Magnification (PMM), and dysmenorrhea symptoms, have been described carefully as the basis for treatment. The existence of a symptom pattern consistent with definitions of PMS has been described, and the possibility for its idiosyncratic experience has been theoretically developed and tested. Defini-
tions and criteria for clinical assessment based on daily recordings as well as retrospective assessment have been established.

One of the first epidemiologic studies of premenstrual mood change in a healthy, community-based sample was conducted by Woods in which women’s daily experience of feelings, cognitions, and physical changes were assessed across three menstrual cycles using prospective daily diaries in multiple, non-clinical samples of regularly menstruating women (Woods, Most, & Dery, 1982; Woods & Hulka, 1979; Woods, Mitchell, Lentz, Taylor, & Lee, 1987). An important contribution by Nancy Woods to understanding what is and is not PMS is the redesign of the epidemiologic approach to estimating the prevalence of PMS. Instead of assuming a set of a priori symptoms or signs attributed to the label of PMS, she turned the epidemiologic model on its head by asking women about their daily experiences across multiple menstrual cycles. Factor and cluster analysis methods allowed classification of these data based on women’s lives across all menstrual cycle phases rather than only the premenstrual or menstrual phase.

The measurement of perimenstrual experiences has become increasingly sophisticated as well as reflecting its complex, nonlinear nature. Ellen Mitchell and colleagues (Mitchell, E. S., et al., 1991; Mitchell, E. S., et al., 1987, 1993; Mitchell, E. S., et al., 1992) have made important contributions to advancing the definition of PMS through their data-based models of perimenstrual experience classification (perception, evaluation, response patterns). Research methods that go beyond the traditional quantitative approaches are now better able to capture the women’s subjectivity (lived experience) and diversity, such as the interview method, cross-cultural research, ethnography, and feminist experimental methods. A number of studies have compared views and experiences of menstrual cyclicity, including PMS, of women from other cultures (Berg, J., 1999; Beyene, Taylor, & Lee, 2001; Brown, M., & Zimmer, 1986; Dan & Al-Gasseer, 1991).

Social and physical environmental effects on the menstrual cycle and PMS experience have been explored, examining the effects of perimenstrual symptoms on work, marital relationships, mother-daughter relationships, and family functioning (Brown, M., & Zimmer, 1986; Roberts, S. J., & Garling, 1980; Robinson, K., 1997).

Nursing research has been influential in expanding therapeutic studies beyond the context-free clinical drug trials while maintaining the “gold-standard” experimental methods—placebo controlled, randomized clinical trial designs. The earliest studies included nonrandomized trials of the effectiveness of biofeedback and autogenic training for menstrual pain, feminist self-help groups, community education strategies, combined self-help and professional support groups, and behavioral (transpersonal approach, relaxation training, telephone counseling, and exercise) therapies (Amato, 1987; Heczy, 1980; Heinz, 1986; Miota, Yahle, & Bartz, 1991; C. Morse, Dennerstein, Farrell, & Varnavides, 1991; Morse, G., 1999; Taylor, D., & Bledsoe, 1986). In the 1990s, well-designed, controlled clinical trials of complementary therapies and cognitive-behavioral therapies were reported (Cohen, S. M., 1989; Groer, 1993; Morse, G., 1999). The first NIH-funded, randomized clinical trial of a pilot-tested, non-pharmacologic treatment included personal symptom management strategies as well as strategies for controlling social stress (Taylor, D., 1996, 1999, 2000).

This clinical trial demonstrated how environmental stress management was as important as personal stress management strategies for coping with mood and physical symptoms.

Putting the science back into self-care has been a major contribution of menstrual cycle research by nurse scientists, resulting in research dissemination to consumers. In 2002, Diana Taylor published one of the first science-based self-help books for women that described effective, non-drug remedies for relieving PMS (Taylor, D., & Colino, 2002). Progress has also been made within professional and clinical communities to translate research into practice, using both empirical research as well as women’s experiences as
an important aspect of the base of evidence. One national organization of women’s health nurses has implemented a model of clinical guideline development—the Association of Women’s Health, Obstetric and Neonatal Nursing (2003). This professional organization of women’s health care providers developed an innovative clinical practice guideline (Association of Women’s Health, Obstetrical & Neonatal Nursing) based on a broad range of clinical, empirical, and theoretical evidence and subsequently evaluated the guideline in nursing practice through a research-based practice project (Collins-Sharp, Taylor, Kelly-Thomas, Killeen, & Dawood, 2002). In this guideline, they recommend the term Cyclic Perimenstrual Pain and Discomfort (CPPD) to differentiate normal cyclic changes associated with menstruation from the severe, debilitating menstrual and premenstrual symptom experiences that require professional or pharmacologic intervention. Albeit the label references the negative end of the perimenstrual experience spectrum, it is based on a range of empirical studies using quantitative and qualitative methods of women’s experiences, not just hypothetical pigeonholing.

As more nurses assume roles as primary care providers for women, the need for these evidence-based therapeutic models is critically important. Clinical trials of treatment models, coupled with interventions to promote the understanding of menstruation, symptoms, and self-care options, should be aggressively pursued.

Diana L. Taylor

Preoperative Psychological Preparation for Surgery

Study of methods for preparing adult patients for the experiences associated with having surgery comprises one of the largest bodies of research important to the practice of nursing. The first experimental study of preparation for surgery was published in the early 1960s by a nurse, Rhetaugh Dumas (Dumas, R. G., & Leonard, 1963). Since then more than 190 investigations of preparation for surgery were conducted by nurses, physicians, or psychologists.

Concerns about the prevention of pulmonary, gastrointestinal, or circulatory complications of surgery guided much of the early research. Many investigators examined various strategies to help patients deal with the discomfort and anxiety caused by getting out of bed, walking, and coughing, and deep breathing exercises were designed to aid recovery and prevent surgical complications. These studies were often guided by pragmatic concerns, such as whether structured or unstructured teaching, group versus individual teaching, or different methods of information delivery produced less anxiety and aided patients in performing these preventive activities. Other early studies examined the effects of provider-patient interaction. These interventions were highly individualized to identify and meet patient needs. Another approach to preparation for surgery included descriptions of routines of care such as skin preparation, preoperative medication, and transport to surgery and to the recovery room following surgery. This type of orienting information was derived from content found in textbooks or hospital procedure manuals and was often called procedural information.

Although theories about stress and coping began to appear in the literature in the 1950s and 1960s, the research about preparing patients for the stressful experience of having surgery generally remained atheoretical through much of the 1970s. Beginning in the mid 1970s some investigators began to test more theoretically derived interventions to help patients cope with the experience of having surgery. One of these interventions was preparatory sensory information, later called concrete objective information. Based on self-regulation theory (Johnson, J. E., 1999), this intervention describes in concrete and objective terms the typical physical sensations associated with the experience of having surgery; that is, what patients would see, feel, hear, or taste. These sensory experiences are linked to their cause. Examples include de-
scription of the sensations associated with preoperative medication (e.g., drowsiness), incisional sensations (e.g., burning, stinging) and how these sensations may change with activity and over time, being in the recovery room with frequent checks of vital signs, and the timing of expected changes in physical activity following surgery. Other interventions related to stress and coping that have been studied include a variety of relaxation methods, hypnosis, and positive thinking. Relaxation strategies have been more frequently studied in persons having surgery than have the latter two interventions.

Because many studies were atheoretical, most outcome indicators used to assess intervention effects were based on expectations drawn from clinical experience and inferences made about how the intervention was expected to improve specific patient outcomes. Outcomes most frequently used included length of stay, medications, pain, and emotions. Most studies assessed outcomes only during hospitalization; however, a few investigators assessed intervention effects on continued recovery and return to usual activities following hospital discharge.

The authors of a series of meta-analyses of studies testing preparatory interventions in patients having surgery (Devine & Cook, 1986; Hathaway, 1986; Devine, 1992) and at least one narrative review (Johnson, J. E., 1984) have drawn similar conclusions: patients who received any of the experimental preoperative preparatory interventions experienced more positive outcomes than patients not receiving such intervention, and these effects are substantive. There also was some evidence that combining intervention strategies produced greater positive effects than did single interventions. Cost savings derived from intervention effects on length of stay and medical complications also were demonstrated in the meta-analysis of studies published between 1961 and 1983 (Devine & Cook), although the magnitude of the effect was less, particularly for length of hospital stay, in the later years. Cost savings also were demonstrated in one study of psychoeducational care delivered by staff nurses after implementation of the diagnosis-related groups prospective payment system (Devine, O’Connor, Cook, Wenk, & Curtin, 1988). The ability to replicate similar cost savings in today’s clinical environment is less likely because of even more changes in the delivery of surgical care that reduce the length of hospitalization for many patients.

Research concerning the preparation of patients for surgery has a long history, and it is clear that patients benefit from these interventions. The research findings were published in numerous journals over these years and they are also now included in nursing textbooks. The use of preparatory interventions for surgical patients is a common nursing practice. Because interventions frequently were combined in many studies, it is difficult to determine the specific contribution of each intervention to these positive effects. Such information would enhance clinical decision-making in selecting an intervention(s) to include in the preoperative care of surgical patients. Increased use of theories in the study of preoperative care, such as was done with self-regulation theory, will aid clinician decisions in selecting interventions for preoperative care and the appropriate outcomes for evaluation.

The nature of surgical care has changed dramatically in recent years. The shift to “same day” or ambulatory surgery with admission the day of surgery, discharge upon recovery from anesthesia, or very short postoperative hospital stays created the need for changes in the delivery of preoperative care. It also shifted much of the responsibility for ensuring that preoperative procedures were followed and that postoperative assistance and monitoring of recovery were provided to patients and their families. Even when patients are hospitalized following surgery, the postoperative stays are shorter and patients frequently return home with need for continuing assistance from their families. The practice of minimally invasive surgery also has become prevalent. These changes in surgical practices not only require changes in how preoperative nursing care is provided, but also suggest that new or different care for
patients and families may be needed. At the same time there were fewer studies of preoperative preparation for surgery.

Because of these changes in surgical practices and postoperative care, there is need for new research about psychological preparation for surgery. This research should draw on prior research about preparation for surgery and theories relevant to coping with health care experiences. In an environment of cost containment, new research must consider assessing cost outcomes. While preoperative preparation most likely will not decrease hospital stays, using theory may suggest new ways to assess intervention cost effects. For example, in a study of cardiac surgical patients (Kim, Garvin, & Moser, 1999), one group received routine preoperative information consistent with procedural information. Another group received concrete objective information about mechanical ventilation and communication during ventilation plus procedural information. Patients receiving concrete objective information reported less negative mood and communication difficulty, as expected. They also were intubated for less time than the comparison group. The latter effect was unexpected but interpreted within self-regulation theory. Considering intubation time as a recovery indicator for intervention effects suggests using intubation-related costs as an outcome. Social costs of care, such as family member loss of income, out-of-pocket costs, or other costs related to recovery and care in the home, might also be considered when relevant to theoretical expectations.

Lastly, it is acknowledged that many of the insightful, important ideas expressed by Johnson in the first edition of The Encyclopedia of Nursing Research are retained in the above paragraphs—although possibly in less detail or in different ways.

NORMA J. CHRISTMAN

Pressure Ulcers

Pressure ulcers remain a common health problem throughout the health care system. It has been conservatively estimated that annually 1 million adults develop pressure ulcers. The incidence rates vary greatly depending on the health care sector. However, pressure ulcer incidence rates for hospitals range from 0.4% to 38%, for skilled nursing facilities from 2.2% to 23.9%, and for home health agencies from 0% to 17% (Cuddigan, Ayello, Sussman, & Baranoski, 2001). The annual cost to treat pressure ulcers has been estimated at $1,335 billion, with an average cost range of $1,190 to $10,185 or more (Kerstein et al., 2001).

The development of pressure ulcers occurs when there is sufficient pressure over time to cause capillary destruction, resulting in tissue necrosis. Although the amount of time and pressure needed to obstruct normal capillary closure vary (acuity of patient), research has found that capillary pressure ranges from 20 mm Hg to 40 mm Hg, with 32 mm Hg considered the average. However, this goal standard is being revisited, since it is possible to develop pressure ulcers at much lower pressures.

The development of a pressure ulcer and/or failure to prevent the ulcer from progressing to a more severe stage can result in negative consequences for the health care system. Litigation has significantly increased related to pressure ulcer development. Moreover, the U.S. Centers of Medicare and Medicaid Services (formerly, Health Care Financing Administration) consider the development of pressure ulcers as a failure in delivery of quality services, since the prevention of these ulcers depends on the cooperation from the entire health care team.

Nursing research has remained at the forefront in building the knowledge base related to pressure ulcer prevention. The first step in effective pressure ulcer prevention is identifying those patients at risk for ulcers. Conservatively, there are over 100 health factors associated with pressure ulcer development. The development of pressure ulcer prediction tools has made a significant difference in identifying those vulnerable adults and children at risk for ulcer development. Nursing research has lead to the development of pres-
Pressure Ulcers

Pressure Ulcer Prediction Tools

Some of the most common prediction tools are the Braden Scale for Predicting Pressure Ulcer Risk and the Norton Scale (U.S. Agency for Health Care Policy and Research, 1992). The Braden and Norton Scales have good sensitivity (83%–100% and 73%–92% respectively) and good specificity (64%–77% and 61%–94% respectively), but have low positive predictive value (approximately 40% and 20% respectively) (Bergstrom, Braden, Laguzza, & Holzmann, 1987; Norton, D., McLaren, & Exton-Smith, 1975). Thus, there are patients who are receiving preventive interventions that are truly not at risk. Moreover, optimal cut-off scores may be different depending on patient population; thus continued research in this area is greatly needed.

The use of pressure ulcer prediction tools in non-White populations has been questioned, since many of the prediction tools being used have not been validated in non-White populations.

Several nursing research studies examining the predictive validity of these pressure ulcer prediction tools have emerged in the nursing research literature. Lyder and others (1999) examined the predictive validity of the Braden Scale in Blacks and Hispanics. The scale was found to be highly predictive ($p = .01$) when an optimal cut-off score of 18 or below was used. Conversely, Pang and Wong (1998) investigated the predictive validity of the Braden Scale, the Norton Scale, and the Waterlow Scale (primarily used in the United Kingdom) in a Chinese population. These researchers found that the Braden Scale had the best sensitivity (91%) and specificity (62%). It appears that the Braden Scale may provide an overall better sensitivity and specificity in non-White populations; however there remains a paucity of nursing research examining both risk factors and validation of prediction scales in non-White populations.

The development of the Agency for Health Care Policy and Research (now the Agency for Health Care Research and Quality) guidelines for pressure ulcer prevention was a milestone for both distilling and disseminating current research knowledge on the most effective methods for preventing these ulcers. Led by nurse researcher Dr. Bergstrom, these guidelines provided key areas for clinicians to consider for pressure ulcer prevention (risk assessment, repositioning, use of support surfaces, etc.). Because pressure ulcer development is a multivariate problem, no studies could be found that successfully implemented the guidelines in its entirety. Gunningberg, Lindholm, Carlsson, and Sjoden, (2001), investigating the incidence of pressure ulcers in 1997 and 1999 among patients with hip fractures, found significant reduction in rates (55% in 1997 to 29% in 1999). They attributed these reductions in pressure ulcer incidence rates to performance of systematic risk assessment upon admission, accurately staging pressure ulcers, using pressure-reducing mattresses, and continuing education of staff.

Similar results have been noted in other studies when they implement similar pressure ulcer prevention program (Xakellis, Frantz, Lewis, & Harvey, 1998; Lyder, Shannon, Empleo-Frazier, McGehee, & White, 2002). Although nursing research studies have identified the principles of pressure ulcer prevention, additional studies are needed to determine optimal titration levels for preventive strategies based on the patient pressure ulcer risk levels and cost of interventions to the health care system (resources, staff burden, etc.).

In 1994, the Agency for Health Care Policy and Research (led by Dr. Nancy Bergstrom) published guidelines on the treatment of pressure ulcers. Nurse researchers have been quite active in leading the knowledge development in specific areas of pressure ulcer treatment, in particular, tools to objectively monitor pressure ulcer healing. Bates-Jensen, Vredevoe, and Brecht (1992) developed the Pressure Sore Status Tool (PSST) to assessing the healing of pressure ulcers. The content validity of the PSST was established by a panel of 20 experts. Interrater-reliability was established, $r = .91$ for first observation and $r = .92$ for second observation (Bates-Jensen et al., 1992). Another area in which nurse researchers have made an impact has been the evaluation of dressings to assist in the healing
of pressure ulcers. Studies have found that, compared to traditional gauze, modern wound dressings heal pressure ulcers faster, are more economical, and save on caregiver time (Bolton, van Rijswick, & Shaffer, 1997).

Much research is still needed on examining the outcome (healing rates, costs, etc.) of standardized protocols for pressure ulcer treatment. Nursing studies are needed on developing and implementing alternative therapies for healing pressure ulcers. Qualitative studies are needed to understand the “lived experience” of patients with pressure ulcers. Finally, nursing researchers can take the lead on developing and evaluating appropriate levels of pressure ulcer care for patients receiving palliative care.

COURTNEY H. LYDER

Prevention of Preterm and Low-Birthweight Births

The prevention of preterm and low-birthweight (LBW) births continues to be a major health care challenge in the United States. Preterm or premature births are defined as those occurring before 37 completed weeks of gestation, with very preterm births considered to be those occurring before 32 completed weeks of gestation. Low-birthweight is defined as a weight of less than 2,500 grams (5 lbs 8 oz), while very-low-birthweight (VLBW) indicates a weight of less than 1,500 grams (3 lbs 4 oz). In spite of major advances in prenatal and perinatal health care, the incidence of preterm birth in the United States increased by 27% between 1981 and 2001, now representing 11.9% of all births. In 2001, preterm birth with low-birthweight was the leading cause of death in the 1st first month of life, accounting for 23% of all neonatal deaths, and further, is a leading contributor to infant morbidity including: mental retardation, cerebral palsy, vision and hearing deficits, and chronic lung disease. Demographically, there is an increasing disparity in rates of preterm and low-birthweight births by African-American mothers (17.5% in 2002) and those by white mothers (11.1% in 2002) (Centers for Disease Control and Prevention, National Center for Health Statistics, 2003). This growing disparity is not explained by known risk factors for preterm births.

The occurrence of preterm births and low-birthweight births are a distinct but highly related phenomena, with 98% of VLBW births and 66% of LBW births associated with prematurity. Additionally, 20%–30% of low-birthweight births are associated with maternal smoking. The specific causes of preterm birth remain unclear at this time despite intensive research. However, risk factors associated with preterm birth include: maternal use of alcohol, tobacco or other drugs during pregnancy; low maternal weight pre-pregnancy or low weight-gain during pregnancy; short interpregnancy interval; maternal infections including periodontal disease; social stress; maternal age; and domestic violence. Reflecting the continuing concern regarding preterm and LBW births in the United States, two of the objectives of Healthy People 2010 are the reduction in the incidence of low-birthweight and very-low-birthweight births, and the reduction of preterm births.

Research related to preterm and LBW births includes descriptive, correlational, and historical studies exploring the relationships among possible risk factors and birth outcomes; the evaluation of common interventions (traditionally designed prenatal care and bedrest for prevention of preterm labor) designed to reduce the incidence of preterm and low-birthweight births; and testing interventions directed at modifiable risk factors.

One of the areas intensively studied is the role of prenatal care in reducing the incidence of LBW births. In 1985 the Institute of Medicine (IOM) published a report concluding that, based on available research, early and comprehensive prenatal care was effective in reducing the incidence of LBW (Institute of Medicine, 1985). This conclusion promoted a national policy advocating universal and early prenatal care. However, in a recent meta-analysis of original research, systematic
reviews, other meta-analyses, and commentaries evaluating the content, timing, and context of prenatal care, Lu, Tache, Alexander, Kotelchuk, and Halton (2003) conclude that there is little evidence that prenatal care as currently practiced is effective in preventing preterm or LBW births. In a critical review of current science related to preterm and LBW births, Lu and colleagues propose that the content of prenatal care be redesigned to include risk assessments for neuro-endocrine, immune-inflammatory, and vascular mechanisms now thought to have a causative role in preterm and LBW births. Further, they challenge the timing of prenatal care, suggesting that many of the antecedents to preterm and LBW births occur early in the life of the mother, before the initiation of prenatal care or pregnancy. Factors including maternal nutritional status, early exposure to infectious or inflammatory disease, and early chronic maternal stress may be related to later negative birth outcomes. Thus, the timing of “prenatal care” needs to be reconceptualized to include early and comprehensive health care rather than limited to the period of the pregnancy. Finally, they propose that prenatal care that does not address the social and environmental context of the mother is likely to be ineffective. The experience of racial discrimination, air and water pollution, neighborhood safety concerns, and the lack of a socially supportive environment have all been linked to an increased incidence of preterm and LBW births.

The effectiveness of a second common intervention, prolonged bedrest to prevent preterm labor, has been challenged by nurse researchers. Maloni (1996) describes the common side effects of prolonged bedrest during pregnancy, including depression, anxiety, and muscle weakness. In a sample of 141 women treated with prolonged antepartum bedrest, maternal weekly weight-gain was lower than the IOM recommendations (p < 0.001) and infant birthweights were lower than the national mean when matched with the national average for each infant’s race, gender, and gestational age (p < 0.001) (Maloni, Alexander, Schluchter, Shah, & Park, 2004). In addition, while the prescription of bedrest continues to be a common intervention to prevent preterm labor, no controlled studies have been reported to support its effectiveness.

Two interventions evaluated in controlled studies are the effectiveness of smoking cessation programs and community-based nursing telephone follow-up. Maternal smoking during pregnancy accounts for 20%–30% of all LBW births in the United States (Healthy People 2010, 2000) and is one of the most important modifiable causes of poor pregnancy outcomes. Smoking cessation programs as part of prenatal care have been studied to determine their impact on maternal smoking behaviors. A nurse-managed smoking cessation program consisting of a 15-minute individualized intervention combined with telephone follow-up after 7–10 days was evaluated with 178 pregnant women (Gebauer, Kwo, Haynes, & Wewers, 1998). At 6–12 weeks after the intervention, the intervention group had a 19% self-reported abstinence and a 15.5% abstinence confirmed by saliva cotinine, compared with 0% in the control group. In related work, the 6th Research Based Practice program developed by the Association of Women’s Health, Obstetrical and Neonatal Nurses (AWHONN) focused on the development of an evidence-based protocol to address smoking in pregnancy (Maloni, Albrecht, Thomas, Halleran, & Jones, 2003). The AWHONN program uses translational research to create protocols for integration directly into clinical practice. The protocol to address smoking cessation during pregnancy includes screening strategies and counseling during prenatal care.

In a prospective, randomized trial with a sample of 1,554 women receiving prenatal care, the effectiveness of a nursing telephone intervention was tested. Women in the intervention group received telephone calls from a registered nurse one-two times per week during the 3rd trimester of their pregnancies. In a cohort of African-American women 19 years of age or older, the incidence of LBW births was reduced from 15.3% in the control
group to 11.3% in the intervention group (Muender, Moore, Chen, & Sevick, 2000).

In summary, the mechanisms leading to preterm and LBW births are not clearly understood. Therefore, much of current research is focused on the elucidation of causation and on the evaluation of interventions to reduce known risk factors. Interventions reported to be effective include smoking cessation classes and telephone follow-up and support by nurse clinical specialists. Controversies continue regarding the effectiveness of prenatal care as it is commonly provided and the use of bedrest for the prevention of preterm labor.

Marilyn J. Lotas

Primary Care

Primary care is prevention-oriented general wellness and illness care of individuals and families. Primary care is characterized as being accessible, affordable, continuing, comprehensive, and coordinated. This form of personal health care delivery evolved to its contemporary state in the 1960s from earlier public health nursing and general medicine practices. Later, primary care became the foundation and entryway to secondary and tertiary care, especially in managed care systems. The Institute of Medicine (IOM) defined primary care as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing within the context of family and community" (Donaldson, Yordy, Lohr, & Vaneslow, 1996, p. 33). Primary care can be defined according to the type of provider, actual service, level of acuity of the illness, delivery setting, and client-provider relationship (Marion, 1996; Starfield, 1998). Primary care is facing major challenges to its value in the United States. Primary care delivery is unequal in access and quality according to race, income, type of employment, and other factors (IOM, 2003). Also, primary care medicine is reported to be in crisis (Moore, G., & Showstack, 2003) due to consumer preference for specialists and emergency departments, less use of primary care physicians as managed care gatekeepers, slipping salaries and unfilled residencies, and increased access to alternative health care providers. Cooper, Getzen, McKee, and Laud (2002) predicted a shortage of primary care physicians in the near future.

In the face of change and challenges inherent in the U.S. health care system without coverage for many of its residents, advanced practice nurses (APNs) have entered the field of primary care delivery in increasing numbers. Teams of APNs have influenced traditional primary care and created innovative models through basic health and health care knowledge transfer. Nurse researchers, with funding by the National Institutes of Health (NIH) and other funding sources, have investigated health phenomena and have conducted "translational" research by evaluating utilization of basic science and applied science. In addition to the traditional nursing research doctorate (PhD) for generating new knowledge, there has been a resurgence of the practice doctorate to support evidence-based practice and new delivery model development (Marion et al., 2003).

The nursing perspective is largely congruent with that of the 1996 Institute of Medicine, except that the family as well as the individual is considered to be a primary care client. Also, nurses place primary care in the context of primary health care, a set of beliefs and principles concerning rights and responsibilities of individuals, communities, and providers as partners (World Health Organization, 1978). Finally, nurses emphasize their teaching/coaching, case management, and caring competencies in providing primary care (National Organization of Nurse Practitioner Faculties [NONPF], 2002).

The ideal primary care team is multidisciplinary, with nursing, medical, and other types of professionals collaborating in a mutually respectful way to capitalize on each member's individual strengths. Outcomes of this arrangement have shown potential for
reducing utilization while maintaining health status (Sommers, Marton, Barbaccia, & Randolph, 2000). Nurses who deliver primary care include advanced practice nurses (APNs), such as nurse practitioners, certified nurse midwives, nurse specialists, and generalist nurses with basic nursing preparation. Primary care physicians are prepared in family and internal medicine, obstetrics and gynecology, and pediatrics. Health care specialists often provide primary care services to their clientele, and these specialists may or may not ensure that a full range of primary care services are delivered within the specialty system.

Primary care research can generally be categorized into health services delivery, effectiveness of diagnostic methods and care regimens for specific health needs, and client-provider interaction research. Primary care as a method of health service delivery includes health services access and utilization: cost; process and outcomes according to type of provider, health care system, setting, geographic region, and payment mechanism; client satisfaction; barriers to care; and continuity-of-care models. Defining primary care, determining essential (diagnosis and treatment) and cutting edge (technology and genomics) primary care competencies, and identifying preferred providers for specific activities are topics for further research. Distance care, such as telehealth to support self-care, is a health services delivery modality that is receiving much attention from researchers. Targeting care to groups of individuals with common needs and tailoring care to the actual individual are foci of health promotion and chronic disease management. To understand commonalities appropriate for group interventions, researchers are analyzing large data sets to identify what individuals fit into groups, such as for cost effective disease management (Bodenheimer, 2003). To tailor interventions to the individual, qualitative and mixed methods help to plan intervention protocols for testing. Related to health services delivery is health care policy research. The effects of policy on primary care and the effects of primary care trends in policy are explored and described in this field of research.

Effectiveness among diagnostic methods and care regimens for client-specific health needs has been a main focus of primary care research. Primary care client needs span most of the health continuum from health promotion to palliative care. Various forms of effectiveness research encompass the development and evaluation of (a) screening protocols based on the epidemiology of the problem and the community; (b) diagnostic procedures; (c) pharmacotherapeutics; (d) exercise, nutrition, and other health promotion prescriptions; (e) alternative therapies; (f) comfort measures; and (g) others. Effectiveness measures include benefits such as health/illness and functional status, quality of life, costs, and client (individual and family) satisfaction. Translating new knowledge to care delivery through evidence-based guidelines is a priority for the NIH Roadmap (NIH, 2003).

Client-provider interaction is of great interest to primary care researchers. Interaction is a vehicle to gain and deliver information, demonstrate caring and support, and plan health care on a mutual basis. Besides the development of a trusting relationship, interaction is largely directed at improving client health behaviors and supporting adherence to recommended regimens for specific health problems. Because the client is ultimately responsible for these activities, client-provider interaction is crucial to the health outcome. Increasingly, providers are using methods such as computerized-based tailored interventions to extend their reach to more people and to get better outcomes. Reaching the right balance of face-to-face and other methods of behavior change and support is a focus in primary care research today.

Research on nursing within a primary care context has mostly centered on APN processes and outcomes in comparison of those of physicians and physician assistants using medical care models (Marion, 1996). Also, primary care APN data are often buried and unidentifiable within physician and insurance data sets. The numerous small studies with
limitations provided a convincing picture of competence and cost effectiveness. More recently, Mundinger and others (2000) conducted a randomized trial comparing primary care patient outcomes between physicians and nurse practitioners with the same authority, responsibilities, productivity, and administrative requirements, and the same patient populations. The investigators concluded that the patient outcomes of health status, health service utilization, and satisfaction were comparable.

In 1996, The American Academy of Nursing, with initial funding from the Agency for Health Care Policy and Research (now Agency for Healthcare Research and Quality [AHRQ]), Department of Health and Human Services, began to explore the possibility of a practice-based research network (PBRN) to study primary care among primary care APNs to describe their clientele, practices, and health delivery systems. Since that time, two APN primary care PBRNs have been established with funding by AHRQ: one in the Northeast and another in the Midwest. The Michigan Academic Consortium of nurse-managed academic centers has undergone comparative financial analyses among the four centers (Vonderheid, Pohl, Barkauskas, Gift, & Hughes-Cromwick, 2003).

The potential for future APN primary care PBRNs exists in evolving networks in national organizations. In 2004, the National Organization of Nurse Practitioner Faculties has approximately 1,200 faculty members, with over three quarters in clinical practice. These members represented over 100 graduate nursing programs with academic nursing centers, and many of these programs had several primary care delivery sites. These sites include school and college-based clinics, occupational health settings, mental health facilities, churches, homeless shelters, public housing, and other community agencies. At the same time, the National Nursing Center Consortium is increasing numbers of nursing centers throughout the nation and has adopted a minimum data set for data collection.

In summary, primary care research has a broad base, covering health phenomena of individuals, families, and communities and the delivery of health services, with the goal of improving the health of the nation.

LUCY N. MARION

Primary Health Care

The interdependence and complimentary nature of health with social and economic development is a basic premise of primary health care. A PHC approach emphasizes full development of human potential, community mobilization, and collaborative decision-making between health professionals and community members.

The World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) sponsored the International Conference on Primary Health Care held in Alma-Ata, USSR, in 1978. The Declaration of Alma-Ata, endorsed by member governments of the United Nations at the 32nd World Health Assembly in 1979, provided foundational explication and a definition for Primary Health Care. The basic components of PHC were derived from case studies (Djukanovic & Mach, 1975; Newell, 1975) that examined diverse international health care programs, functioning with limited human, technological, and financial resources, to identify the common structures and strategies across cases.

Primary Health Care is essential health care based on practical, scientifically sound, and socially acceptable methods and technology. It is made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of con-
tact of individuals, family, and community with the national health system, bringing health care as close as possible to where people live and work, and it constitutes the first element of a continuing health care process (World Health Organization, 1978).

Five basic principles for implementation of PHC are: (a) equitable distribution ensuring accessibility of health services to all of the population, (b) maximum community involvement in the planning and operation of health care services, (c) a focus on health services that prevent disease and promote health rather than cure disease, (d) the use of appropriate technology and local resources that are socially acceptable and sustainable, and (e) a multisectoral approach that integrates health programs with social and economic development (WHO, 1985).

Implementation of Primary Health Care is contextually grounded. The development of PHC policies and services are based on the predominant health concerns of communities, and adapted to the cultural, political, and economic conditions of each country or community. Decentralization enables local community involvement in planning and implementation. Through collaboration, community members and health professionals shape programs and services to the particular socio-cultural circumstances of the community. A system of PHC services requires political commitment and appropriate economic policies locally, nationally, and internationally. Community development, multisectoral collaboration, and multilevel coordination facilitate implementation of services in keeping with the PHC standards of what is acceptable, affordable, appropriate, effective, and sustainable.

Primary Health Care teams interact to coordinate community health activities. The composition of a Primary Health Care team is determined by program needs, availability of health professionals, and local practices. Lay community health workers (CHWs) and traditional practitioners are often provided with basic health education. CHWs serve on health teams with nurses, midwives, social workers, physicians, or other appropriate multisectoral personnel.

While disease prevention and health promotion activities are given priority by a PHC team, curative and rehabilitative services are provided within a referral network. A predominant function of the health team is provision of education for communities and clients. Health education includes relevant information about common health concerns, and strategies that enable community mobilization for full participation in community-based health programs. PHC team members facilitate community involvement in an assessment process that identifies local resources and capabilities for community health and development. The Primary Health Care process promotes health through self-learning, self-determination, self-care, and self-reliance.

The terms “Primary Health Care” and “Primary Care” have frequently been used interchangeably. However, they each have distinctive characteristics. Primary Care, as a level of care focused on individuals, is one component of a comprehensive Primary Health Care framework that addresses population-based issues at community and country levels.

The essence of Primary Health Care is community participation in defining and addressing problems; practical understanding of the integral relationships among social, economic, and health conditions of a community; commitment to essential health services; and collaboration between community residents, health professionals, and a multisectoral network of other professionals. Therefore, PHC is an interactive approach to health care where community residents are expected to be knowledgeable in health matters, and to actively engage in their health care management. Moreover, PHC addresses self-care practices for physical and mental aspects of community health, as well as community social and environmental conditions. The basic goal of Primary Health Care is the attainment of optimum health, expressed in the internationally recognized slogan “Health for All.”
Primary Health Care programs and literature are frequently integrated with other conceptual frameworks. Adult and popular education concepts, primarily based on Friere’s work, and concepts of community assets and capacities have guided PHC implementation with strategies that engage communities in identifying their issues and resources. Community development concepts have been merged with PHC approaches from the time of Alma-Ata. In more recent years, social capital and social cohesion have emerged as concepts incorporated to facilitate PHC discourse and the growth and development of PHC programs.

Over the years, various international and national nursing organizations have promoted PHC as a means for meeting the health needs of the public, with special attention to vulnerable and underserved populations. To this end, Dr. Halfdan Mahler (WHO, 1986), the Director-General of the World Health Organization until 1988, recognized the potential for nurses to be a powerhouse for change if they mobilized around advancement of PHC ideas and convictions. Nursing leadership in PHC is illustrated in the National Institute of Nursing Research (NINR) Agenda for Community-Based Health Care (NINR, 1995). The document presents an NIH priority expert panel’s adoption of Primary Health Care as a key concept for community-based health care, providing a basis to identify strategies for developing nursing knowledge for practice in urban and rural settings. Within the region of the Americas, nurses have engaged in PHC through the Florence Nightingale tradition of combining political activism and scholarly work, development of community programs, and educating community health workers as change agents for community health (McElmurry, Marks, & Cianelli, 2002). Nurses’ contribution to the development and continuation of PHC is also evident in PHC literature. An integrative literature review of curricular applications of PHC found ongoing commitment to PHC, with 184 nurse authors from a global sample presenting PHC concepts consistent with the Alma-Ata definition (MacIntosh & McCormack, 2000). A multi-sectoral literature review, with predominant sampling from nursing publications, identified five categories within the PHC literature: concepts, social discourse, human resources, implementation, and participatory evaluation (McElmurry & Keeney, 1999). This review highlighted the participation of nursing in international PHC arenas and provided direction for nursing leadership in present and future development of PHC policy, services, and research. Overall, PHC concepts offer a framework for constructing future directions for nursing within a rapidly changing health care environment.

Since the ratification of the Alma-Ata Declaration, health policies and systems have shifted, beginning with major international initiatives and funding for PHC implementation, then moving to include health policy discourse that has questioned the effectiveness of PHC. With the 2004 celebration of the twenty-fifth anniversary of the declaration, international leaders have named lack of attention, misinterpretation, and oversimplification of PHC principles as basic critiques for not achieving PHC goals and assert that it is essential for the global community to reclaim the comprehensive approach for PHC as delineated at the Alma-Ata Conference (Tejada de Rivero, 2003). The World Health Organization has continued to refer to PHC as a cornerstone for international health initiatives, with the Pan American Health Organization (PAHO, the WHO Americas Regional Office) passing a resolution in 2004 reaffirming commitment to Primary Health Care as a strategy for continuing to work towards the goal of equity and “Health for All” (PAHO, 2004).

Beverly J. McElmurry
Gwen Brumbaugh Keeney

Primary Nursing

Primary nursing is a nursing care delivery system that places the nurse-patient relationship at its center. One nurse is accountable
and responsible for planning, management, delivery, and evaluation of a patient and his or her family’s nursing care. Primary nurses practice with a small group of associate nurses who care for the patient in their absence. Continuity between nurse and patient is essential. Primary nursing flourishes best in an environment that recognizes the unique contributions of the professional nurse and supports the various components of professional practice. Typically, a decentralized approach to nursing management featuring a clinical nurse manager, participation in professional committees, and strong systems of accountability are present. Autonomy and authority over nursing practice are emphasized.

Primary nursing was initially conceived in the early 1970s by Manthey, Ciske, Robertson, and Harris (1970). Giovannetti (1980) extended this work, and Clifford (Clifford & Horvath, 1990) is widely recognized for expanding a nursing care delivery system into a professional practice model. Historically, primary nursing has been anecdotally identified as a strong predictor of patient and nurse satisfaction. Research on primary nursing has been fraught with conceptual and methodological challenges. Many studies lack conceptual and operational definitions, theoretical frameworks are not explicitly stated, instrumentation is frequently flawed, and research design less than rigorous.

Despite this lack of research rigor, primary nursing was widely implemented. Many of the original magnet hospitals, for instance, used a primary nursing model. Lack of cost-benefit analyses and measures of efficacy contributed to a building sense in many hospitals that primary nursing was no longer affordable, and many of the myths associated with primary nursing were promulgated. Many believed, for example, that a 100% RN skill mix was necessary for primary nursing.

Recent pressures to decrease the cost of inpatient hospital care and wide spread adoption of reengineering principles have resulted in new patient care delivery models. Many of the patient-focused care models herald a return to the team or functional nursing care delivery models of the past. Concepts such as the nurse-patient relationship, professional nursing practice, and continuity between nurse and patient are conspicuously absent in many of the new patient-focused care models. Rather than recognizing primary nursing as one of the earliest process redesigns in health care, elaborate new systems are being promoted that actually create numerous handoffs between team members. Clinical nurses are in jeopardy of being pulled further from patients to coordinate an increased volume of support tasks. Interestingly, many of the methodological flaws present in the initial evaluation of primary nursing have returned to the evaluation of patient-focused care models. Instruments lacking validity and reliability, inappropriate sampling methods, and lack of operational definitions prevail. Once again, major decisions are being made about nursing care delivery without rigorous evaluation.

Those institutions that have reaffirmed a commitment to primary nursing and professional practice models offer another opportunity to scientifically assess the outcomes of this nursing care delivery system. Rigorous qualitative and quantitative methods are required in this important area of investigation.

Maureen P. McCausland

Prostate Cancer

Prostate cancer is the most prevalent visceral cancer in men in the United States; some 1.3 million men now live with it (American Cancer Society, 2003b). It has been estimated that 70% of men who survive to 80 years of age have evidence of histologic or latent prostate cancer (Pienta & Esper, 1993). Some researchers, and a great many clinicians and their patients, believe histologic prostate cancer eventually leads to clinically evident cancer (Pienta, Goodson, & Esper, 1996). Thus, in an effort to influence the natural history of prostate cancer, intensive screening efforts dominated by the use of prostate-specific antigens (PSA) in the past 2 decades have led
to the diagnosis of scores of asymptomatic, latent cancers. These efforts have resulted in reports of both increased incidence and prevalence of prostate cancer (Newschaffer, 1997), accounting for a doubling of incidence of prostate cancer in the U.S. in the 10-year period from 1984 to 1994 (Parkin, Pisani, & Ferlay, 1999).

Approximately 80% of the 220,900 men diagnosed with prostate cancer in 2003 will learn that they have locally confined disease—early stage prostate cancer (Jemal et al., 2002). Therapeutic alternatives for early stage prostate cancer include radical prostatectomy, external beam radiotherapy, brachytherapy, cryosurgery, and observation (“watchful waiting”). Although approximately one third of patients with early stage prostate cancer elect radical prostatectomy, none of the active treatments has been shown to offer a survival advantage over observation, although an interim analysis of one trial suggests a small reduction in prostate cancer specific efficacy but not overall mortality (Harris & Lohr, 2002; Holmberg et al., 2002). Moreover, each of the active treatments, including radical prostatectomy, is associated with physical side effects, including urinary, bowel, and sexual dysfunction, which may have substantial effects on quality of life.

Most research on “quality of life” outcomes in early prostate cancer has focused on the often-problematic side effects of active treatment, including urinary, bowel, and sexual dysfunction (Talcott et al., 1998). Recent prospective studies have shown that after brief declines, generic measures of quality of life return to baseline levels by 12 months after primary prostate cancer treatment. However, for some, urinary and sexual dysfunction may persist indefinitely, accounting for varying levels of psychological distress related to changes in masculine identity, stigmatization, or demoralization (Powel, 2002; Clark, Rieker, Propert, & Talcott, 1999; Pirl & Mello, 2002).

Prior to the PSA era prostate cancer was a malignancy often detected only in late stages, and associated with imminent death (Litwin, 1994). In the past 20 years the proportion of late to early stage disease has shifted dramatically. Recent findings indicated that there has been a significant reduction in the incidence of metastatic stage disease at diagnosis, and men are being diagnosed at an earlier age. These findings have supported the emphasis on local treatment (i.e., radical prostatectomy and external beam radiotherapy), for which the 5-year survival rate approximates 100%. However, the survival curve declines with longer follow-up, with 54% of those determined to be at low risk of recurrence (risk derived from initial PSA, Gleason score, and clinical stage) recurring by 15 years (D’Amico et al., 1998). The mean onset of clinical metastasis (e.g., symptomatic skeletal metastasis) corresponds to Gleason score; those men with Gleason scores of less than 8 having a 27% chance of disease progression at 5 years after biochemical recurrence, whereas men with Gleason scores of 8 to 10 have a 60% chance of clinical metastasis at 5 years (Pound et al., 1999; Kupelian, Elshaikh, Reddy, Zippe, & Klein, 2002). Thus, while intensive screening has led to the diagnosis of earlier stage disease and improved local therapy, many are left with lifelong physical consequences of primary treatment, and recurrence is increasingly common within 5 years. Thus, prostate cancer represents a significant health problem.

Medical research is addressing many of the clinical challenges endemic to prostate cancer management. Research that is underway relates to the genetic predisposition of prostate cancer and mechanisms of carcinogenesis, updates in the screening of prostate cancer, improved imaging techniques, recent advances in the technical aspects of local therapies, the use of nomograms to predict outcome probabilities, advances in hormonal treatment for prostate cancer, including mechanisms potentially useful in reducing the risk of prostate cancer, the role of dietary and complementary therapies in prostate cancer, the role of chemotherapy in the treatment of hormone-refractory prostate cancer, and the integration of bisphosphonates, radioisotopes, and radiation therapy in the treatment of bone metastasis. While these studies repre-
sent impressive strides, other clinical concerns are not well studied. With an estimated 380,000 new cases of prostate cancer expected by 2025, research conducted by nurses over the next few decades is warranted.

In an *Index Medicus* search of manuscripts on prostate cancer written by nurses, 170 articles were found from 1974–2003. Of these, 45 were reports of original research on 16 different topics, including: cancer-related fatigue (2), complementary/alternative care (1), coping (2), couples (6), culturally-sensitive care (1), decision making (3), spirituality (2), men’s concerns (2), quality of care (2), quality of life (7), screening (6), sexuality (1), survivors (1), treatment outcomes (5), uncertainty (1), and watchful waiting (2).

In essence, nursing research on prostate cancer has focused on screening of high-risk individuals and effects of local therapy, including feelings of uncertainty, impact on quality of life, and impact of prostate cancer on couples. Two themes were common to many of these reports: (1) patients do not receive sufficient information to make informed decisions about treatment, and (2) patients are infrequently asked about their experiences related to prostate cancer and its treatment.

Several studies found that men have a poor understanding of prostate cancer and its treatment, what conditions to expect after treatment, and how to manage postoperative symptoms and the emotional consequences of primary treatment. Investigators addressed this issue at various time points in the treatment experience—just after diagnosis, while waiting for surgery or radiotherapy, and immediately postoperatively. While several studies interviewed only men, others included a spouse or partner in the interview either individually, as a dyad, or both. The studies that interviewed men typically focused on the impact of physical changes men experienced after local therapy, whereas those that included couples addressed concerns that were slightly different. For example, in one study couples expressed the need to readdress their marital relationship after the illness as well as a cohesive message from the couple about how much information they would share with others about the cancer (Gray, Fitch, Phillips, Labrecque, & Klotz, 1999). In another study, couples were concerned with how to cope with the changes and the uncertainty of their future (Harden et al., 2002). Three intervention studies used psychological distress as an outcome of insufficient information to increase information-sharing that was consistent with the subject’s interest and decision-making style. All showed decreased psychological distress as a result of information-related interventions (Davidson, Goldenberg, Gleave, & Degner, 2003; Johnson, J., Fieler, Wlasowicz, Mitchell, & Jones, 1997; Johnson, J., 1996).

When an investigator takes the time to ask about patients’ experiences, patients tell them. The problem is that they are not being asked very often. When they are asked, they do not often feel as if their concerns are legitimized. Indeed several papers articulated the value of in-depth interviewing as a method of ascertaining sensitive information from men regarding feelings about changes in physical function following primary treatment and the impact it has had on their relationships and lifestyle. This concern was also apparent in two studies focusing on measuring cancer-related fatigue, a particularly distressing problem for men with recurrent disease. They found that dimensions of fatigue, particularly as it related to patients with metastatic cancer, had not been well articulated. The investigators recommended that more time be spent on extrapolating meaning from people’s experiences rather than being so quick to measure them with instruments that assess cancer-related fatigue and therefore may not include all of the attributes that patients experience.

In addition to the papers that related to these themes, Weinrich and colleagues’ (2004) impressive program of research in prostate cancer screening warrants mention. These investigators have focused on screening in African-American men, in whom prostate cancer is disproportionately present, as well as rural low- and middle-income men. They have crafted population-specific interven-