

Leadership in Nursing Research

Margaret Heitkemper

Professor, Dept. of Biobehavioral Nursing and Health Systems University of Washington, USA

Nursing research is a relatively new discipline when considered in light of medical and basic science research. Despite our relatively brief period in this arena, nurse researchers have shown themselves adept at conducting not only the research necessary for our discipline's development but also developing science that is important to a number of other disciplines.

In the 1970s Donaldson and Crowley defined the discipline of nursing as that which is characterized by "a unique perspective, a distinct way of viewing all phenomenon, which ultimately defines the limits and nature of its inquiry". They further expanded this definition to state that the science of nursing is characterized by 3 themes: 1) principles and laws that govern life processes, well-being, and optimum function during illness and health; 2) patterns of human behavior in interaction with the environment in critical life situations; and 3) processes by which positive changes in health status are affected. Nursing research has as its ultimate goal the improvement of individual, family and community health.

To accomplish these goals, nursing research has a long tradition of being collaborative and interdisciplinary. Writing about this in 1973, Jeanne Benoliel wrote that "the development of scientific knowledge in nursing depends on research-oriented individuals who are capable of both collaboration and competition in the search for new ideas. To date, nurses in research have demonstrated considerable proficiency in the art of collaboration..." With the launching of the National Institutes for Nursing Research as part of the National Institutes of Health (NIH) in 1986, the role of nurses as leaders of research teams was clearly launched in the United States.

Leading the research enterprise is a complex and rewarding task. As Angela McBride wrote, "leadership is working with others to achieve shared goals in a complex world that is constantly changing". A number of nursing leaders have written about the requisite skill set needed to be effective leaders. These skills (communication, collaboration, morale building, creativity, reality orientation, and evaluation) are the same skills that are needed to successfully run a single study or a research center. At the professional level we need to target areas for research investment (especially during a time of dwindling resources) and develop strategies for building science across research institutions as well as countries.

Today I would like to present some thoughts on areas that nurses are poised to initiate or continue to play a major leadership role in terms of health care research development. These naturally reflect my bias towards biobehavioral research and are not meant to be exhaustive but rather representative. Several years ago the National Institutes of Health launched an initiative referred to as the NIH Roadmap with a vision to re-engineer the research enterprise in the United States. There are several components to this roadmap, and many are directly relevant to the types of research for which nurse scholars are actively engaged, in particular: efforts to examine the clinical research workforce training; the assessment of patient-reported chronic disease outcomes; and translational research. At the same time, we need to pay attention to other new opportunities that may not appear to be directly related to our current portfolios. This is particularly true when considering initiatives to develop and test new technologies to enhance science development. Efforts to enhance real time data collection particularly as it relate to interventional studies, are important to nurse scientists testing strategies to reduce symptom distress. Automated physiological data collection, along with symptom reporting devices, will also allow for better understanding of the temporal relationships between symptoms and physiology.

There is increased incorporation of genetic markers into nursing research studies. Understanding disease risk and vulnerability may be key not only to predicting diseases but also to predicting who might benefit from different therapeutic strategies. Several years ago, Leroy Hood said, "We will discover, in the next 10 or 15 years, hundreds of genes that predispose to disease – we will be able to take a snippet of blood, analyze the genes and write out a health history for that person – what would happen in his or her life without interventions. By so doing, we can move into a preventive mode, by knowing what is likely to happen and how to prevent it. What's created is an opportunity to extend the life span by 10 to 30 years." The sequencing of the human genome has taken us from understanding single gene disorders such as Huntington's disease and cystic fibrosis to having the basic knowledge to begin to examine more complex, multifactorial (multiple gene) disorders such as heart disease. In my own research we have utilized a genetic marker, serotonin reuptake transporter protein (SERT) alleles, to explore differences across subgroups of women with

irritable bowel syndrome (IBS: a chronic functional bowel disorder). We have noted that those with one of three types of allele are more likely to have a lifetime history of depression as well as greater daily reports of depression. Such results may be important in determining therapeutic options for patients with this condition. At the same time, there are issues related to confidentiality and disclosure of genetic information in cases where there is no cure.

As alluded to above, it is hoped that understanding genetic risks will increase the average lifespan as well as enhance the quality of life during those additional years. An examination of demographic trends from the U.S., as well as other industrialized countries such as South Korea, makes it evident that the percentage of individuals over the age of 65 is increasing. This projected exponential increase in the older adults necessitates more research related to improving the lives of older individuals, for example, reducing disability due to chronic illness, testing health promotion strategies to reduce chronic illness; understanding factors that enhance caregiver activities. Nurse researchers have made profound contributions to the understanding of aging in a number of important areas including Alzheimer's disease management, urinary incontinence, heart failure, and CAD and stroke prevention. With respect to gerontology, important infrastructure support systems such as the Hartford Foundation have allowed for greater support of beginning researchers, including pre and postdoctoral fellows. In addition, curriculum development grants have targeted beginning nurses to enhance their understanding and appreciation of the aging process. Centers of excellence focused on aging have emerged and through collaborative, interdisciplinary research have generated substantial knowledge. A number of these initiatives have been led by nurse scientists. At the same time nurse scientists have described the impact of caregiving on family members including children and spouses. Interventions to reduce caregiver stress have been tested and await broader implementation.

In December 2004, the National Institute of Health convened a conference to review the scientific evidence related to end-of-life (EOL) care. This state of science conference brought together researchers from a variety of disciplines including nursing, medicine, social work, and public health. Nurse investigators presented on diverse topics including EOL care for pediatric patients, family support during palliative and EOL care, symptom management, and inter-professional communication challenges. Despite the volume of literature related to EOL care there are very few interventions that have been systematically studied. At the same time, most of what we know is related to cancer patients. Despite the substantial number of deaths due to cardiovascular, respiratory, and neurological disorders, there is a dearth of data-based literature available to guide practice. What emerged from that conference was a list of research priorities. Each of these represents an important leadership opportunity for nurse scientists.

Research interventions focused on self-management are another area that there has been led by nurse researchers. These interventions range from individual management of diabetes to community based interventions to empower patients with the knowledge and skill to manage symptoms and to enhance adherence to therapeutic regimens. Many of these interventions (which are nurse led) result in reductions in health care utilization costs as well as enhanced quality of life. Despite these impressive scientific findings many of these interventions await wide-scale implementation, in part because they are often multi-component and clinicians often ask "which component is most beneficial, or what dose of the intervention is needed?" So, while we have data to support that our interventions work, we may not know why or how they work, e.g., a package or dispersed elements? Who is most likely to benefit? Do social and environmental contexts make a difference? And can technology make difference? Again, nursing research leadership is needed.

Such questions are important to answer as we face the next generation of health problems. One that is ever present in American society is obesity, and it is not difficult to imagine this becoming a growing problem worldwide with widespread globalization. The increased vulnerability to diabetes and its complications and cardiovascular disease has resulted in concerns about the overall impact on the average lifespan. The rising rate of obesity is a multi-component problem. Decreasing levels of physical activity beginning early in life and increasing access to high fat foods are clearly two culprits that contribute this growing problem. From a women's health perspective, there are vulnerable periods when weight gain is more likely. This includes after puberty, during pregnancy and at menopause. There are clear gender-related differences in where weight is gained as well as the metabolic consequences of that gain. At the same time, there is discouraging data about the efficacy of diet therapy and exercise adherence. While nurse researchers have been engaged in obesity research at a number of levels, including genetic predisposition, metabolic syndrome, and exercise adherence, even greater attention is warranted. The results of studies need to form the basis for public policy, including issues such as mandatory physical exercise in grade schools, healthy food choices in vending machine foods in school cafeterias, and health promotion activities in the work place.

Another area in need of greater nursing research leadership is in the area of infectious diseases. At the public health level, there are weekly alerts about the potential for devastation due to avian flu. In third world, countries measles and other infectious diseases still affect large percentages of the population. At the institution level, we are dealing with a growing number of antibiotic resistant organisms that will make the treatment of bacterial infections in the future more challenging. At the individual level, we have challenges related to identification and treatment of chronic infectious disorders including HIV, hepatitis B, and hepatitis C. We now better understand the linkages between infections and others disorders. This year Barry Marshall will receive the Nobel Prize in medicine for his discovery of *Helicobacter pylori* and its impact on the gastric/duodenal mucosa and ulcers. Twenty-two years after that discovery we now know



that *H.pylori* is also linked with gastric cancer. The work of Elaine Larsen has informed us about the challenges of instituting and maintaining routine procedures such as hand-washing, as well as the use antimicrobial products. Several investigators have examined the impact of routine nursing practices on infections in hospitalized patients, while others have examined medication adherence in HIV, TB, and hepatitis C patients. Nursing leadership is again needed to implement these strategies and to test them within the broader health care community.

Health disparities research represents another important target for nursing leadership. Nursing, as a profession, has long been concerned with issues related to access to care, along with inequities in the quality of that care. Factors such as race, culture, economics, rural versus urban environment, age, and gender may all contribute to inequities in the quality of care received. For example, research over the past 20 years has demonstrated inequities in pain management, access to diagnostic procedures, and overall survival. In the U.S., there are currently NINR funded centers of nursing research focused on addressing and alleviating (if possible) the causes of health care disparities. Such research presents a number of challenges, foremost of which is access to vulnerable populations.

When discussing each of the topics above I have made mention of several exemplars of nursing research and have noted the importance of nursing research leadership. There are several areas that we need to enhance and strengthen. First is communication. As you all know, dissemination is the last step in the research process. However, as a group we need to consider the importance of publishing beyond our discipline. When selecting a journal we should ask ourselves "who is most likely to use this information?" This may be a non-nursing journal. We need to challenge ourselves to communicate in the language of other disciplines, not just our own. Second is collaboration. Research is not an activity that is unique to one individual or one discipline. As nurse researchers we enrich our non-nursing colleagues and vice versa. Today, at the National Institutes of Health it is nearly mandatory that research projects be multidisciplinary and, as stated above, we are well poised to do this. Third, we need to be visible. When benchmarks of our success in health care research are listed, they will include funded grants and published papers. However, professional organization leadership is also important. Nurse researchers in the U.S. have served as presidents of major interdisciplinary groups including the American Pain Society, American Heart Association, and North American Menopause Association. Such efforts not only serve as important signposts for the integration of our science with others, but also provide unique opportunities for guiding the direction of science. Fourth, we need to be ever cognizant of the need for the next generations of nurse scientists. Mentoring of others is an essential quality of a leader. This is especially true in the area of research, where in the process of building science we rely on the legacy of others.