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G

Transformational Models of Nursing Across Different Care Settings¹

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INTRODUCTION

From the time of Florence Nightingale when nursing introduced public health and hygiene principals to the care of wounded soldiers, to the 20th century establishment of advance practice nurses, nursing has been at the forefront of health care transformation. We are now challenged as the health care needs of the population change from an acute and infectious disease focus to that of an aging population with chronic disease. The cost of health care is rising and the number of people who are poorly served by our health care system is increasing.

Along with the change in the health care landscape we are facing a nursing workforce shortage and a nursing leadership shortage. By the year 2025, it is estimated that we will have a shortfall of between 300,000 and a million nurses. Four out of every 10 nurses will be over the age of 50 (Buerhaus, 2008). Moreover, by 2020, 75 percent of the current nurse leaders will have left the nursing workforce (Hodes Aging Workforce Study, 2009).

The following briefs represent the creative and innovative thinking of nurse leaders to address our current and future challenges. They were prepared for the Robert Wood Johnson Foundation Initiative on the Future of Nursing Institute of Medicine Committee, by fellows of the Robert Wood Johnson Foundation Executive Nurse Fellows program. This is an advanced leadership program for nurses in senior executive roles in health services, public health and nursing education who aspire to help lead and shape the U.S. health care system. The program is

¹The responsibility for the content of this article rests with the authors and does not necessarily represent the views of the Institute of Medicine or its committees and convening bodies.

designed to give nursing and nurses a more influential role across many sectors of the economy. Fellows in this program represent the expertise and leadership of today and the leadership of the future. These briefs include background on the needs, evidence-based innovations and most important, recommendations for healthcare in 21st century.

The briefs include the following areas in health care and health care education:

- Transformational Partnerships in Nursing Education
- Innovative Nursing Education Curriculum
- Acute Care
- Chronic Care
- Palliative and End-of-Life Care
- Community Health
- School Health

COMMON THEMES

A number of common themes emerge from the briefs. In order to meet the challenges of the future we must embrace technology, foster partnerships, encourage collaboration across disciplines and settings, ensure continuity of care and promote nurse-lead/nurse managed health care.

- **Technology.** Advances in technology open a new world in the provision of health care. The use of technology includes electronic health records, telehealth, remote monitoring, education through simulation, and a host of as yet undiscovered innovations.
- **Partnerships and Collaboration.** The importance of partnering and collaborating extends beyond interdisciplinary care at the bedside to nursing education-community partnerships, community and business partnerships, and public and private partnerships.
- **Continuity of Care Across Settings.** Our current “siloed” system leaves significant gaps in care. Smooth transition of patients from setting to setting is especially needed with the elderly and chronically ill populations.
- **Nurse-lead and Nurse Managed Health Care.** From the developing model of primary care community based programs to retail-based nurse practitioner clinics, nurses are filling in the primary care gap.

RECOMMENDATIONS

Each brief includes an important set of recommendations specific to the area addressed. However, a number of universal recommendations emerge that direct the future of nursing and health care.

- **Education.** The current nursing education model is not adequate to meet the needs of the future. Education must develop new partnerships with the community, business and healthcare institutions. More emphasis and resources must be directed to preparing master's- and PhD-level nurses.
- **Public Policy.** Solid funding sources are needed to support nurse practitioners, nurse managed community health programs and nursing education. Funding must cross settings from acute care to home and community based care. Nurses must be included on local, state, and national health care advisory and policy committees.
- **Care Models.** We must continue to develop innovative care models based on current successes such as the acute care agile self-directed nursing teams, the rural healthy aging community model and school-based and community-based nurse managed clinics. These models should cross disciplines, foster collaboration and partner with communities, business and other organizations.

The future of health care rests solidly with the strength nursing brings in holistic care, ability to collaborate and innovate from the bedside to the community and the ability to adapt to the changing environment. In order to make this happen nursing must adapt education and curriculum to the new century, promote higher education, advocate for innovative models of care and advocate for the health care and education policy to support those innovations.

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TRANSFORMATIONAL PARTNERSHIPS IN NURSING EDUCATION

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INTRODUCTION

Although the nursing care environment has changed significantly over the past 30 years, little has changed in the educational methods used to prepare new nurses. Since the 1930s, most clinical education in nursing has been structured with a faculty member supervising a small group of students on one or more in-patient units. Students usually move to new settings for each clinical rotation. This traditional model is heavily dependent on nursing faculty and often requires students to wait for direct faculty supervision. Students often are “strangers” to the registered nurses providing patient care in these settings. This arrangement can compromise the cohesiveness of the nursing team and limit opportunities for building professional relationships between students, registered nurses, and other members of the health care team. Developing a more structured and cohesive partnership between the registered nurse and the student, both of whom are providing care to the same patients, has the potential to revitalize clinical education in nursing.

BACKGROUND

Since Buerhaus and colleagues (2000) first documented the nursing shortage facing the United States, educational institutions have been challenged to increase capacity. The most commonly cited reasons for lack of nursing school capacity are a shortage of nursing faculty and availability of clinical sites (AACN, 2005). Over the last decade new partnership models have developed to finance the creation and expansion of nursing programs, create access to nursing education at all levels, expand and support faculty members, and increase capacity to—and experiences at—clinical sites for students.

As early as 1993, the Robert Wood Johnson Foundation provided stimulus grants through *Colleagues in Caring*, a grassroots, state-by-state initiative to bring together healthcare administrators, academics, state regulators, and legislators. This early dialogue prompted states and health care providers to broaden financial support for colleges of nursing, develop joint simulation training centers, and create new approaches to placing nursing students in clinical settings. The initial support from a major philanthropic organization evolved into centers for nursing workforce expansion in a number of states. The number of graduates has increased, but is still not sufficient for future workforce needs (Buerhaus et al., 2009). New models for accelerated doctoral programs are key to producing more nursing faculty and innovative partnerships are imperative the success of these programs.

Pre-licensure nursing education is a costly endeavor. While health care organizations have contributed to existing schools, others have acquired nursing schools as part of broader hospital acquisitions. Feeling the pressure of nursing shortages as they plan future organizational growth, large health systems have forged partnerships with private universities to open additional schools of nursing. Institutions such as DeVry, Kaplan, the University of Phoenix, and Western Governors University have business models that can respond to market needs with rapid expansion. The International University of Nursing in St. Kitts, West Indies is the first offshore U.S.-based college of nursing. This sector can be expected to grow, especially as states and local communities respond to budget shortfalls in a downturn economy.

INNOVATIONS

Across the nation, innovative academic-service partnerships are reenvisioning the role of the registered nurse as clinical teacher and facilitating 1:1 relationships between nurses and students over extended periods of time (Allen et al., 2007; Joynt and Kimball, 2008; Moscato et al., 2007). In these partnerships, students, faculty, and staff report that students have less unproductive time spent waiting for clinical supervision and better socialization to the professional nursing role (Udlis, 2008). When clinical education is structured to facilitate relationships between students and nursing staff, the faculty role changes as well and includes more involvement with the professional development of nurses as preceptors, coaches, and clinical teachers. Most importantly, students and faculty are not viewed as visitors in the clinical setting, but rather as integral members of the nursing team, committed to building cultures of quality and safety (MacIntyre et al., 2009). Many hospitals are requiring faculty to participate in internal continuing education and competency validation. Innovative partnerships are re-engineering the faculty role to take advantage of what graduate prepared faculty can bring to the clinical setting.

The National Council of State Boards of Nursing (2008) reports a wide varia-

tion in clinical hours between schools of nursing. There is no evidence linking any specific number of hours to improved student outcomes. A change in focus from hours to demonstrated competencies, whether in simulation labs or clinical settings, would make more optimal use of the clinical sites available for student experiences and help make education available to more students. Program evaluation studies that document the relative worth of breadth versus depth in the clinical experience will help academic–service partnerships move from traditional to evidence-based approaches.

Universities and community colleges are increasing their efforts to adopt statewide curriculum models, allowing for seamless transition between programs. These partnerships between associate and baccalaureate nursing programs create more efficient and effective educational advancement pathways for students. Recognizing the link between improved patient outcomes and baccalaureate nursing education (Aiken et al., 2003; Heller et al., 2000) and the need to build efficiencies in nursing educational programs, the state nursing schools in Oregon (<http://ocne.org>) and Hawaii (www.nursing.hawaii.edu) created Statewide Nursing Consortiums Curriculums that provide a seamless transition to a baccalaureate in nursing for nurses with associate degrees in one additional year of full-time study. These programs are creating reusable learning objects (i.e., case studies, simulation scenarios, concept-based clinical learning activities) that are immediate, portable, accessible, and ready for on-demand education, suitable for a technology-savvy student population. Initial outcomes from these programs are promising include an increase in the student’s national nursing certification rates and positive student learning outcomes (Tanner, 2009).

Innovations in interdisciplinary education on college campuses include new health care models that are designed to produce collaborative learning among students in nursing, management, journalism and communication, and architecture programs (Melnik and Davidson, 2009). These nontraditional academic partnerships bring a variety of perspectives and expertise together that could define the future of education, health, and health care. The dramatic expansion of second-degree programs in nursing is producing a more liberally educated nursing workforce that should facilitate interdisciplinary competence in practice settings.

Partnerships between states are also transforming nursing education by creating access to educational opportunities across state lines. These interstate collaborations between educational institutions are offering joint programs that increase access to all levels of nursing education in rural and underserved areas in the United States through course sharing and collaborative program development across educational institutions (i.e., the joint Neonatal Nurse Practitioner program at University of California San Francisco and University of Hawaii and The Nursing Educational Xchange). Although these opportunities are emerging, there is still work to be accomplished on a national level to further support interstate partnership in nursing education. National nursing licensure at both the RN and Advanced Practice levels would allow the state boards of nursing to focus

more on consumer protection in their state rather than the regulatory issues of granting state licenses.

RECOMMENDATIONS

Cultivating partnerships will provide many avenues for building capacity in innovative ways for nursing education. Ten recommendations for the future of nursing education are

- Create nontraditional partnerships within and outside of educational institutions;
- Explore opportunities for the creation and expansion of nursing programs through private partnerships and health care institutions;
- Develop, implement, and evaluate innovative academic–practice partnerships between nursing programs and acute care, primary care, long-term care, community, and public health settings;
- Move from a time-based model of clinical nursing education to a competency-based model, and evaluate the evidence to support this type of learning in nursing education;
- Support the implementation and evaluation of statewide curriculum models between universities and community college systems;
- Expand interdisciplinary educational opportunities and programs;
- Champion interstate partnerships to increase access to educational opportunities;
- Support research for evidenced based educational practices that challenge existing norms;
- Build stronger relationships between nursing students and registered nurses providing patient care; and
- Address policy issues that create barriers to the above recommendations.

Innovative partnerships between nursing education and nursing practice are essential if the nursing profession is to meet the challenges ahead. The dissemination of successful innovative models in nursing education requires evidence as well as creative and adaptive partnerships that are developed, nurtured, and evaluated.

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INNOVATIVE NURSING EDUCATIONAL CURRICULUM FOR THE 21ST CENTURY

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INTRODUCTION

The changing landscape of healthcare in America requires that clinicians be skilled in responding to varying patient expectations and values; provide ongoing patient management; deliver and coordinate care across teams, setting, and time frames; and support patients' endeavors to change behavior and lifestyle—education which is in short supply in today's academic and clinical settings (IOM, 2003). Nursing education needs to innovate at the micro and macro system level for the 21st century. It cannot be business as usual.

In order to truly transform care, practice and education will need to partner on curriculum development and the professional socialization of the new nurse.

BACKGROUND

Innovation in academic settings, specifically colleges of nursing is often hindered by the pressure to meet educational and regulatory requirements established by national organizations, accrediting agencies, and the state boards of nursing that govern and set standards for nursing practice at both the baccalaureate and graduate levels (Melnik and Davidson, 2009). These regulations should not be barriers to innovation. Time-honored traditions in nursing education such as the current undergraduate clinical instruction model, a disease and illness-oriented curriculum, and the need for extensive clinical practice before matriculating in doctoral programs should be reexamined. There is a need to embrace technology-infused education, transdisciplinary approaches to care, and translational research. Students need to learn how to effectively assess and manage some of the most significant health problems currently confronting our society (e.g., mental health disorders, obesity, patient safety) and how to innovate changes in our health care system (Melnik and Davidson, 2009). Furthermore, a very uncomfortable, difficult question needs to be asked: "What should be the most appropriate degree for entry into nursing practice?" Given the complexity and wide range of knowledge and competencies that will be required of nurses in the 21st century, it is strongly recommended that nurses be prepared at the baccalaureate level for entry into

practice. Moreover, the entry into practice debate needs to be resolved in the 21st century (Benner et al., 2010).

INNOVATIONS: TECHNOLOGY-INFUSED EDUCATION, TRANSDISCIPLINARY APPROACHES TO CARE, AND TRANSLATIONAL RESEARCH

Simulation is one very effective tool that exposes students to the complexity of clinical settings without the hazards of real life (Ironside et al., 2009). Future nursing curricula need to develop interdisciplinary simulation scenarios focusing on collaboration and crucial conversations so that students can learn how to deal with ineffective professional relationships and unsafe practice in a controlled environment (AACN, 2005). Transdisciplinary or interprofessional models of simulation and debriefing can examine and dissect failed communication in health profession's education and result in a series of recommendations to improve health care environments and patient outcomes. The curriculum for the 21st century needs to provide an opportunity for future health care providers to participate in collaborative education to obtain the necessary advocacy skills to promote a safe, healthy work environment for the patients they serve. Additionally, with the rapid expansion of knowledge, the development of information appraisal and navigation skills are essential for future nurses (Melnik and Davidson, 2009).

Transdisciplinary or interprofessional models of education are at the core of new type of dedicated education unit: one that educates nurses, physicians, pharmacists, and other professionals depending on the type of patient needs addressed. Dedicated education units have previously implemented best practices utilizing the staff nurse as educator (Moscato et al., 2007). This new model of education is broader, more inclusive, and seeks to find commonalities in the cultures of both service and academe and may provide an ideal site for faculty practice as well. As a starting point, a hospital environment is chosen as an exemplar to demonstrate the feasibility of the model. Chief nursing officers would dedicate select units and develop methods to choose seasoned nurses to work in the new environments as change agents. Clinical educators in nursing and other disciplines would establish daily rounds with input from all students at varying levels based on Benner's Novice to Expert (Benner, 1984). More experienced students would mentor the novice. A model of leveled reflective learning has been described in Sweden utilizing different hospitals for different levels of learning within the context of the dedicated education unit (Lindahl et al., 2009).

Nurses, hospitalists, and other health professionals are educated in teaching pedagogy and contribute to the education and evaluation of the students. This innovative model also facilitates a better understanding of what each discipline contributes to the overall plan of health improvement. Students are exposed to multiple faculty members who share responsibility for students and students become a member of the team (Budgen and Gamroth, 2007). Transdisciplinary

team meetings will periodically assess the adequacy of the model, the experience of the student, and the areas for growth.

BUILDING THE SCIENCE

It has been well documented that the nursing profession faces a serious shortage of nursing faculty, as well as a severe dearth of underrepresented minority (URM) faculty (Potempa et al., 2008; Sullivan Commission, 2004), that has dramatic implications for, and is a threat to, the future of nursing. In order for nursing to be a truly resonating force for health in the 21st century, it is essential that we grow the science of nursing and demonstrate its effectiveness in fostering health. The case can be made that the production of masters and doctorally prepared nurses is more critical than a focus on preparation of Registered Nurses. Difficult decisions must be made. Which educational setting best supports the preparation of different levels of practice? Advanced Practice Nurses across the board are needed; nurse faculty, nurse leaders, and nurse scientists are all in high demand.

Masters Entry into professional nursing programs has brought a needed cadre of adult learners with broad-based backgrounds into nursing that enhance the discipline. The emergence of the professional doctorate (DNP) is integral to supporting disciplinary growth. We promote a view of the practice doctorate as one not divorced from research but rather additive to the development and use of science. But this will not be enough. A solid background in science, scientific inquiry, and the scientific basis of health is essential to develop health care innovation.

RECOMMENDATIONS

The authors propose strategies to shape the future of healthcare by creating models of nursing education focused not only on curriculum changes, but also on transforming the student population, integrating the science and research in the curriculum and influencing health care policy.

Curriculum and Technology

- Create truly unique Transdisciplinary Simulation Centers across the country where students from the health disciplines of nursing, health professions, and medicine will be exposed to the complexities of teamwork situations within the clinical setting.
- Develop curriculum well grounded in disease prevention, health promotion, and screening, and public health. Include greater emphasis on the aging, older adult, ethics, genetics, public speaking, and writing skills (Sauder et al., 2006).
- Develop sufficient technology skills to better support increased knowledge management including point-of-care technology.

- Include a nurse educator role in all master's and doctoral programs.
- Increased emphasis on global health and knowledge development at all educational levels.
- Teach students to deal with the ambiguities of the health care environment.

Transforming the Student Population

- Increase the number of BSN accelerated and Masters Entry in Nursing programs designed for second degree students.
- Increase doctoral student enrollment especially those of URM (Kim et al., 2009). Partnership models between research intensive institutions and schools with less research are essential. Models that support early professional movement to the doctorate are essential.

Integrating Science and Research

- Focus on interpreting clinical data and managing improvement.
- Cultivate disciplinary knowledge across all levels of curricula based on an understanding of the science of the discipline and the scientific process (Potempa and Tilden, 2004).
- Develop the role of the nurse scientist.
- Develop “scientifically aware” nurse clinicians who will collaborate with nurse scientists to move research to the bedside. Focus on “Evidence–Creating Nursing,” the direct collaboration between nurse clinicians and nurse scientists.
- Reengineer the Doctor of Nursing Practice (DNP) to include the conduct of research in the form of a practice dissertation.

Health Care Policy

- Increase support for BSN education as a minimum requirement for practice.
- Increase support for the development of advance practice nurses to meet the growing need for primary care providers identified in health care reform measures.
- Institute dedicated education units across the country that are transdisciplinary.
- Promote a better understanding of the business and financial dimensions in nursing and health care.
- Advance Medicare or other federal support to create a Graduate Nursing Education Fund. (similar to Graduate Medical Education).
- Institute a national nursing licensure program.

SUMMARY

Nursing science can raise clinical standards, influence health policy, inform citizens, improve the health and well-being of the public and possibly transform care (Tilden and Potempa, 2003). With health reform cresting, nurses have an enormous opportunity to influence a new evolving health care system that truly improves the health of our nation. The time for innovation is now.

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TRANSFORMATIONAL MODELS OF NURSING IN ACUTE CARE

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INTRODUCTION AND BACKGROUND

Acute care describes healthcare provided to treat a condition over a short period of time. The hospital has been the center for acute care delivery for more than a century. There are three major problems with this “brick and mortar” model of acute care:

- Hospital care is the highest cost health care and demand is increasing.
- Hospital care is associated with complications. Poorly designed systems result in errors that compromise patient care and safety.
- Hospital care is inadequately integrated with prevention and post-acute care systems. Care transitions between providers and settings are fragmented.

The present acute care hospital is largely dependent on the over 50 percent of registered nurses in the United States who work in hospitals. The predominant hospital role of nurses is to care for human bodies and prepare patients and families to leave the hospital as soon as possible. This care delivery model is labor intensive and predicted to break down as workforce shortages escalate.

CARE TEAM OF THE FUTURE: AGILE TEAMS, PRAIRIE LAKES HEALTH CARE SYSTEM, WATERTOWN, SOUTH DAKOTA

A medical-surgical unit care delivery model referred to as “Agile Teams” replaced a “Total Patient Care” care delivery model. In the Total Patient Care model, a nurse is assigned a number of patients to care for over a shift. The nurse is often task-oriented with responsibility for medication administration, documentation, and other patient care procedures with some assistance from unlicensed personnel. Such models are often fragmented emphasizing the nurse’s plan of care for the patient during the shift instead of focusing on the interdisciplinary team’s plan to transition the patient to the next level or care.

In the Agile Team Model, a team of three bedside care providers is assigned to care for a cohort of 10–12 patients. Every team has at least one experienced professional nurse but team composition varies. For example, the team may con-

sist of three registered nurses, or two registered nurses and a licensed practical nurse, or one registered nurse and two other types of providers. This allows for flexible and productive staffing. Self-organization allows the team to determine how to best provide care for the patient cohort depending on patient needs and team capabilities.

The traditional care plan report has been eliminated in favor of a daily team planning conference to discuss patient care. The team enters data into an electronic record and between meetings, any team member can access the record to view or add current information about the patient.

This model has improved unit productivity and provided staffing flexibility without compromising patient care. Unit productivity improved from 10.2 hours per patient day to 7.5 hours per patient day. The hospital has adopted the philosophy of “doing less with less” as a sustainable model. The outcome is a high-quality product with the least amount of waste.

FUTURE SCENARIOS

While the Agile Care Team model is an improvement within the current state of acute care, we need to consider a future that embraces technology and extends beyond the walls of the current hospital system. Imagine the manual care delivery system transformed into one that is managed virtually. An interdisciplinary care team is located in a control center with capability to plan, monitor and administer treatment to patients in hospitals or homes. The control center is connected to the patient at the care scene through multiple electronic data transfer interfaces. Treatment is administered through technology including robotics or by unlicensed staff directed to complete tasks through devices such as web cams, bluetooths, bar code medication verification scanners, and other information transfer devices. Complex tasks once only executed by a highly trained provider can now be completed through robotic and information systems. Errors in care are eliminated as providers in the control center focus on the treatment plan instead of distractions at the care scene such as completing tasks (including medication administration), looking for supplies, completing paperwork, managing interruptions, and moving patients. Nurse-to-patient ratios, increasing nursing time in direct care, nursing stations, and bedside change-of-shift reports between registered nurses are now obsolete. Now the professional nurse in the control center is a provider of care integration, expert surveillance, and management of imminent clinical needs such as pain management and emergency intervention.

Imagine this. The hospital of the future is not “a place” but rather a collection of inpatient and outpatient facilities as well as patient homes interconnected through a shared information technology infrastructure. Care will no longer be defined by episodic events such as a hospital stay but rather by the episode of care required across settings and providers to fully recover from an illness or manage an exacerbation of a chronic disease. Patients and their families will ac-

cess a “control center” website tailored to their needs in their homes to connect to the acute care team and manage their own care. Home monitoring devices will provide data and continuous feedback about clinical status. Readmissions to the hospital due to failure of care protocols and inadequate support will be markedly reduced. Healing will occur at home.

INNOVATIVE APPROACHES TO CREATING THE FUTURE

Innovative approaches already exist that forecast this model in the future:

- “e-ICU” technology that connects rural hospital ICUs to the expertise of larger trauma hospitals;
- Bar-code medication verification systems and electronic medication administration records;
- Bedside access to medications and supplies; robotics;
- Interdisciplinary care teams that include engineers to identify poorly designed work processes; and
- Tele-home health that monitors patients who at home.

RECOMMENDATIONS

We need to change the way we think about our traditional brick and mortar care delivery system. The emerging changes we believe will be most influential include the following:

- **Human Caring Models.** Bent and colleagues (2007) reminds us nursing is the discipline that creates the path to advance human health, dignity, and relatedness no matter what our advances in technology may be. Nursing’s body of knowledge related to human caring is essential to the healthcare system and must be incorporated into the design and development of any future care delivery models. Care delivery models with virtual processes can be designed to maintain human relationships for caring and healing.
- **Hospital Workplace Transformation.** Initiatives such as Transforming Care at the Bedside and Return to Care empower front line teams to make changes to care delivery processes that are patient centered and add value. In addition, Magnet credentialing supports cultures of transformational leadership and infrastructure to support innovations and development of new care delivery models. Human factors engineering in hospital units eliminates wasteful, unsafe workarounds and establishes reliable systems for defect-free care. These initiatives demonstrate the ability of providers to self-organize and innovate for care model transformation.

- **Interdisciplinary Care Teams.** Care delivery teams will be interdisciplinary and connect in ways to be most effective to meet patient needs. They will evolve from current models in which team members operate in organizational silos or forced matrices (e.g., committees) within organizations. Instead of nurses developing the patient's care plan for the hospital stay, interdisciplinary teams will plan the patient's transition to the next level of care. New team roles will develop to manage the transformed system. Care delivery models will be designed with interfaces to effectively coordinate services across multiple disciplines and settings. Clinical and therapeutic decision making will be collaborative.
- **Shared Information Environments.** Rich, accessible information environments will complete the transition from manual care models to e-care with human caring. Care delivery models will be designed to provide access to the information needed for clinical and therapeutic practice. Models will be designed to provide the information environment required for critical thinking and professional judgment, open access to records, and fully wired patient care settings. Documentation will become a byproduct of the care process, not its own process.

SUMMARY

Changing the way we think includes discarding our current models of work and replacing them with something altogether different. Hospital leaders need to foster cultures of innovation and build effective teams to do the work. Regulators need to help remove the barriers that now prevent such innovation and allow the system outcomes to better inform the direction and application of the regulatory environment. Changing the way we think requires serious culture change and transformational leadership.

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NURSING INNOVATIONS: THE FUTURE OF CHRONIC DISEASE MANAGEMENT

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INTRODUCTION

Nurse-led initiatives are at the forefront of the management of chronic diseases—a significant health care focus of the 21st century. The Centers for Disease Control and Prevention report that the leading causes of death and disability in the United States are chronic diseases such as heart disease, cancer, and diabetes. In absolute terms, more than 1.7 million people die of a chronic disease annually in this country. For 25 million people, chronic, disabling conditions cause major limitations in activity; the prolonged course of illness and disability result in extended pain and suffering and decreased quality of life for millions of Americans. The costs in human and economic terms of these diseases are incalculable; paradoxically, these diseases are also the most preventable. This Brief presents five nurse-led innovations in which chronic disease management is approached in cost-effective and practical ways, using prevention and health promotion orientations.

TRANSFORMACION PARA SALUD

The Transformacion Para Salud Program is a HRSA-funded demonstration project at the Larry Combest Community Health and Wellness Center, a nurse-managed primary care center. Advance Practice Nurses oversee four Promotores, who are certified community health workers (CHWs). The CHWs apply the Transformation for Health conceptual framework based on Paulo Freire's educational philosophy and developed in the School of Nursing at the Texas Tech University Health Sciences Center (Esperat et al., 2005, 2008), to provide intensive care coordination involving home visitation and telephonic contacts. Clients and families served, who belong to health disparate groups residing in

a medically underserved area, are enrolled in the chronic disease management program. Beyond primary medical issues, in applying the transformation framework, the interdisciplinary team takes into account social determinants of health in care delivery, and involves engagement of a community advisory board in the program implementation. Within the first year of implementation, improvement in both primary biomarkers and secondary behavioral indicators has been observed in the clients. Cost-effectiveness analyses will be conducted at the end of the project period. A major challenge is to maintain sustainability of the program beyond the grant period because services are not reimbursable through third-party payors at this time.

INTENSIVE PRIMARY CARE

The St. Vincent's Nurse-Managed Health Center (STV-NMHC) is operated by the University of Texas Medical Branch (UTMB) School of Nursing. The mission of STV-NMHC is to provide comprehensive, quality primary care to uninsured residents of the Galveston community. The clinic opened in the immediate aftermath of Hurricane Ike and is supported by UTMB based on the assumption that the practice can decrease hospitalizations in the patients served resulting in cost savings to the hospital. The Center operates using Intensive Primary Care, designed to serve adults with chronic health problems and based on the premise that this segment of the patient population need more "intensive" primary care interventions just as some patients in hospitals need a different level of care in intensive care units. Nurse practitioners, in partnership with nurse case managers and a highly integrated staff, assess patients holistically and address barriers to care and self care. A comprehensive Quality Improvement Program using the Chronic Care Model is in place to address all aspects of care. A new electronic health record tracks outcomes, such as clinical status, functional status, patient satisfaction, self-management goals, access to care, and practice management functions such as the billable services, as well as cost effectiveness. Barriers encountered include bureaucratic issues inherent in large academic settings, as well as the need to meet state requirements of medical oversight and practice protocols. A recent change in prescriptive authority oversight has added to the paperwork burden. Changes in legislations removing oversight for nurse practitioners would significantly help STV-NMHC and similar practices.

THE NURSING MOBILE HEALTHCARE PROJECT

The University of Medicine and Dentistry of New Jersey School of Nursing (UMDNJ-SN), in a collaborative, joint partnership initiative with the Children's Health Fund, has implemented a nurse-faculty managed Mobile Healthcare Project, designed to reduce the morbidity and mortality of medically underserved patient populations in four New Jersey cities. Since March 2006, patients have

been treated for both acute and chronic illnesses within the scope of practice of Advanced Practice Nurses. The Project serves as a practice site for nursing and medical faculty, and as a clinical rotation for nursing and medical students. Mobile nurse-managed centers enable the deeper penetration of this much needed service in underserved communities. This Project is one visionary approach to the Institute of Medicine's call for the improvement of quality of care through the restructuring of clinical education, with nursing in leadership roles. Outcomes are tracked using a structured process. One of the main Project outcomes is cost effectiveness, because it utilizes faculty-supervised nursing and medical students and an interdisciplinary mobile health team staff. This project is in partnership with Project's Community Advisory Board, consisting of representatives from the community-based organizations. Challenges include efforts to expand the same reimbursement mechanisms now afforded to fixed site clinics to mobile nurse-managed centers by third-party payors.

MIGRANT HEALTH SERVICE, INC. NURSE-MANAGED HEALTH CENTERS

Migrant Health Services, Inc. (MHSI) is a HRSA-funded voucher program whose primary goal is improving the health status of Hispanic migrant and seasonal agricultural workers (Guasasco et al., 2002; Lausch et al., 2003). In Minnesota and North Dakota, MHSI has established four seasonal satellite nurse-managed health centers (NMHCs), two mobile units, as well as four year-round NMHCs to meet the health and educational needs of farmworkers. Services include assessment, health promotion, disease prevention and self-management, health risk assessment, counseling, and health education (Guasasco et al., 2002). Patient outcomes have dramatically improved, such as a significant decrease in patients' hemoglobin A1Cs. Another innovation was the development of Cluster Clinics, a series of 9–11 mini-clinics, physically arranged so patients can circulate a single site for two or three hours to receive medical care, diabetes education, and counseling. An interdisciplinary diabetes team provides health care, education, and counseling according to the American Diabetes Association Clinical Practice Recommendations. The education and counseling address such issues as nutrition, diet, exercise, tobacco use, foot care, and access to recommended services and referrals (Heuer et al., 2004). Challenges include continuity and the availability of funding for this invisible, bilingual, mobile population.

CENTURA HEALTH AT HOME

Centura Health At Home (CHAH) is the largest home care organization in Colorado and is part of the Centura Health system, a not-for-profit, faith-based health care system. CHAH instituted an interactive Telehealth Program in 2004 for congestive heart failure patients with high recidivism. Telehealth nurses monitor patients each day in real time and can perform a video visit enabling one-on-

one interactions with the patient in their home, responding to real-time diagnosis specific questions. Vital signs, oxygen saturation rates, and auscultation of heart and lung sounds using NASA technology stethoscopes is collected though the patient may be up to 50 miles away. The telehealth nurse is able to intervene at the right time to address disease-related issues, and to determine if a home visit is indicated. The telehealth nurse does all of this either from the office or from their home through a secure website. With a caseload of 40 patients, the telehealth nurse can monitor and do video visits on 12 patients a day as opposed to a home care nurse who averages five patients a day with a case load of 20 patients. Telehealth allows the nurse to intervene at the right time while the home care nurse may not know the status of patients until a home visit is conducted; by the time the home care nurse visits, the patient may already be back in the hospital. Today, over 900 Centura Health patients have received telehealth services. The number of hospital readmissions within 30 days of hospitalization for this group is 9.7 percent, compared to hospitals nationwide which have a readmission rate of over 20 percent for primary diagnosis of congestive heart failure. Three years of tracking of this program shows that 81 percent have remained without need for further hospitalizations. The intervention has successfully kept patients from being readmitted to the hospital, with tremendous savings (estimated \$5.2 million) in health care dollars, showing that this technology is the future for home care agencies.

CONCLUSIONS AND RECOMMENDATIONS

These examples demonstrate how nursing can provide the leadership and skills in addressing one of the nation's top health care challenges—chronic disease. In order to continue and sustain these initiatives the following must occur:

- Establish solid local, state, and federal funding for nurse-led initiatives in chronic care.
- Support the development implementation and evaluation of innovative nurse-led models of care.
- Fund education initiatives to train nurse leaders in business, public policy, outcome monitoring, and quality improvement.
- Eliminate regulatory and oversight barriers that inhibit the ability of advance practice nursing to provide primary care.

Nursing is shaping health care of the future by creating innovative programs that are effective, low-cost, and reach the populations that most need the care.

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PALLIATIVE AND END-OF-LIFE CARE TRANSFORMATIONAL MODELS OF NURSING ACROSS SETTINGS

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INTRODUCTION AND BACKGROUND

One antidote to the burgeoning crisis in health care is to reconceptualize our care delivery model from episodic disease management to *living* with chronic and life-limiting diseases and injuries. Palliative care, which includes hospice care at the end of life, offers a promising method for actualizing this focus.

At the core of palliative care is the essence of nursing—care and caring. When people are struggling to manage their health problems, they need astute clinicians who can help interpret their responses to diseases and treatments, advocate for holistic and effective care, facilitate relationships with providers, and provide physical, emotional, and psychospiritual care. Although contemporary models of palliative care include end-of-life and bereavement care, they are broadly applicable for all people who are experiencing acute, chronic, or debilitating conditions from the time of diagnosis.

Nurses have been instrumental in the evolution of hospice and palliative care in Europe and the United States. Dame Cicely Saunders, who was a nurse, physician, and social worker, established the world's first hospice in London in the 1960s. Florence Wald, a colleague of Saunders, and a former dean of the Yale School of Nursing, established The Connecticut Hospice, in New Haven, as America's first hospice in 1974 (NHPCO, 2008). According to the National Hospice and Palliative Care Organization, 1.45 million patients received hospice services in 2008, including 38.5 percent of all persons who died in the United States that year. Nurses comprised the largest number of hospice providers involved in that care (NHPCO, 2009).

Registered nurses, as well as advanced practice nurses, have also played leading roles as members of interdisciplinary teams in the development of palliative care programs. These teams focus on improving quality of life through pain and symptom management, enhanced communication and decision-making

support, and facilitation of safe transitions between care settings (Morrison and Meier, 2004). Palliative care programs began to emerge in hospitals in the late 1980s and have evolved to include programs focused on intensive care, long-term care, community-based care, and pediatric care. Between 2000 and 2005, these programs increased by 96 percent in United States hospitals (AHA, 2007). The demand for these services will continue to rise with the aging of the baby boomer population and the evolution of health care innovations that extend life by preventing and treating both acute and chronic illnesses.

NURSING AT THE FOREFRONT OF POLICY

The National Consensus Project, chaired by Betty Ferrell, PhD, RN, FAAN, which represents four Coalition organizations (the American Academy of Hospice and Palliative Medicine, the Center to Advance Palliative Care, the Hospice and Palliative Nurses Association, and the National Hospice and Palliative Care Organization) has developed and disseminated the Clinical Practice Guidelines for Quality Palliative Care in 2004 and 2009. These guidelines serve as a national standard for informing providers, policy makers, and consumers about the attributes of high-quality palliative care (National Consensus Project for Quality Palliative Care, 2009).

THE NURSE AS A KEY WORKER

Patients with palliative care needs often have multiple providers and use several different institutions. This scenario is especially true in pediatrics. To ensure continuity and avoid fractured care, it is essential that the care follow the patient and family. Palliative care provides aggressive symptom management, coordination of care, and psychosocial support with improved linkages to all sites of care (Remke, 2007). A designated “key worker,” supported by an interdisciplinary team, is essential to caring for these patients and families in a holistic way (Field and Behrman, 2003). Often this key worker is a nurse who can bring in other members of the team as needed. Nurses are experts in coordinating both the physical and psychosocial care; so they are ideal providers to serve as key workers to provide continuity of care across the continuum of care and through various settings.

An example of this model is the Pain and Palliative Care Program at Children’s Hospitals and Clinics of Minnesota that provides palliative care to inpatients, patients in their homes, and in a palliative care clinic. The nurse who is the key worker visits patients wherever they are, and assists with care coordination, medication reconciliation, and transition arrangements. These interventions take place in any location, including other inpatient facilities. These “continuity visits” encourage consistency and smooth transitions across sites of care.

NURSE PRACTITIONERS AS PALLIATIVE CARE CONSULTANTS

On the other end of the age continuum, the Palliative Care Center of the Bluegrass, in Lexington, Kentucky, employs nurse practitioners who serve as external palliative care consultants to nursing home staff, residents, and their families. These consults can be initiated by physicians or nursing directors at the nursing homes. The nurse practitioners provide both clinical consultation and education to nursing home staff, focusing on symptom management, advance care planning, patient and family communication, and supporting transitions to hospice services, if needed. Both Medicare and Medicaid will provide reimbursement for this type of external consultation provided by a nurse practitioner. Nursing homes who have used this consultation service report improved pain and symptom management, increased patient satisfaction, and fewer emergency room transfers. This Center has been nationally recognized as one of the Palliative Care Leadership Centers by the Center to Advance Palliative Care (CAPC, 2008).

Advanced practice nurses in critical care units, such as Margaret Campbell, PhD, RN at Detroit Receiving Hospital in Michigan and Patrick Coyne, MSN, APRN, at Virginia Commonwealth University, have also demonstrated the effectiveness of interventions by palliative care services within their institutions. Campbell has developed protocols that promote both physical and emotional comfort to patients and families during the process of weaning patients from mechanical ventilation (Campbell, 1998). Coyne and colleagues have demonstrated significant improvements in their patients with pain, nausea, depression, anxiety, and shortness of breath (Coyne, 2009; Khatcheressian et al., 2005).

A COST-EFFECTIVE MODEL OF CARE DELIVERY

Palliative care interventions enhance physical and psychological well-being, enhance communication between patients, families, and caregivers, increase patient and family satisfaction, and facilitate transitions through complex care delivery environments. Beyond these benefits, palliative care tends to be a cost-effective model of care delivery. A recent multisite study by Morrison and colleagues (2008) demonstrated significant reductions in pharmacy, laboratory, and intensive care unit costs. In their study, which included over 5,000 hospitalized palliative care patients, the palliative care patients who died had a net savings of \$4908 per hospital admission, and palliative care patients who were discharged alive had a net savings of \$1696 per admission, in comparison to matched cohorts of comparable patients who received usual care.

RECOMMENDATIONS

Palliative care is a model that is consistent with basic nursing values, which include caring for patients and their families regardless of their age, culture,

socioeconomic status, or diagnoses, and engaging in caring relationships that transcend time, location, and circumstances. The following recommendations enhance the role of nursing in palliative care and enhance care for both patients and families:

- Support the essential contributions of registered nurses and advance practice nurses within the evolving model of palliative care in the United States.
- Support nursing education and research that advances the palliative care model.
- Use the palliative care model as a framework when addressing the needs of the chronically ill population.
- Ensure that nurses with palliative and end-of-life care expertise are part of local, state, and national health care advisory committees.
- Ensure that representation on MedPac includes nursing with expertise in palliative and end-of-life care.

Nurses address the complexity of patient and family needs and to serve as cost-effective care coordinators or health care navigators for patients and families with both chronic and life-limiting illnesses, to reduce suffering and improve the quality of living and dying across the lifespan.

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NURSES CLOSE THE GAP IN COMMUNITY HEALTH

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INTRODUCTION AND BACKGROUND

Nurses across this country are equipped and capable of meeting the diverse needs of communities by providing leadership, engaging stakeholders and developing and implementing evidence-based models of care to close the gap between preventive and primary care services. The overall health improvement of the nation requires evidence-based health promotion and disease prevention. Nurses design and implement these solutions in a multitude of settings including public health, school-based health centers, nurse managed health centers, convenient care clinics, federal health centers, and home health. Nurses working to address the needs of community health have firsthand knowledge in understanding the healthcare needs of a diverse population, especially in underinsured and uninsured populations facing a widening rift in quality care (Hurley et al., 2005).

As far back as 1986, the Office of Technology Assessment (OTA) released a groundbreaking case study about nurse practitioners (NPs) concluding that the quality of care provided by NPs is equivalent to and in some cases better than that of physicians (Safriet, 1992). Using the advanced practice skills of nurses, technology builds capacity to move seamlessly from the individual-to-community level data to build statewide quality scorecards. The Commonwealth State Scorecard on Health System Performance for 2009 (Moody and Silow-Carroll, 2009) can look vastly different by 2015 by improving access and preventive care, ensuring equitable care, and decreasing avoidable hospitalizations that will help lead to improved healthy lives for the country.

EVIDENCE-BASED MODELS

Nurses working in a predominately Hispanic community, using *Como Convivir Con Su Artritis* (How to Live With Your Arthritis), expanded the health care team by recruiting leaders from the Hispanic community to be trained to teach the Stanford

Self-Management Model, which provides an evidence-based framework to help patients understand their role in chronic disease management. Classes were held at local community sites and helped to reach a vulnerable population (Lorig et al., 1999). In partnering with patients, nurses helped patients gain a better understanding of their chronic condition and improve medication adherence.

In the African American community, high blood pressure (HBP) is one of the most common chronic disease in the United States. A study led by Dr. Martha Hill, the dean of the Johns Hopkins University School of Nursing, demonstrated how a health care team led by a nurse practitioner, a community health worker and a physician consultant successfully lowered blood pressure by 44 percent as compared to control group. By lowering blood pressure, the men in the study also benefited from fewer signs of heart and kidney damage, all of which lead to lower healthcare costs. The nurse practitioner and healthcare team worked in a community setting and providing primary care interventions. An important highlight is that the health care team worked with high-risk African American males in an urban community. The multidisciplinary NP led team, ensured patients received regular health care services and established lasting, trusting relationship that led to lifestyle changes ultimately leading to improved hypertension management (Hill et al., 2003).

Nurses working in the community play a critical role in health promotion and disease prevention. A study by Dr. Loretta Sweet Jemmott, Director of the NINR Hampton-Penn Center to Reduce Health Disparities, demonstrated how black nurses working in schools, health clinics, and other primary care settings helped at risk adolescents learn the importance of using safer sex practices to reduce their exposure to HIV infection. The nurses used various evidence-based interventions designed such as audiovisual demonstrations, technical skill building demonstrations, role-playing, and discussions to engage the adolescents in protecting themselves and others in their community from HIV infection (Jemmott et al., 1998).

The Nurse-Managed Health Center (NMHC) is an evidence-based model that provides care to 2.5 million patients across the country. Services provided in NMHC include primary care, health promotion and disease prevention services to medically underserved patients living in both rural and urban areas (NNCC, 2009). They strengthen the nation's health care safety-net by providing services regardless of a patient's ability to pay or insurance status. Services are offered in easily accessible locations such as schools, homeless shelters, senior centers, churches and public housing developments by a wide array of health care professionals, including nurse practitioners serving as primary care providers, registered nurses, health educators, behavioral health specialists, community outreach workers and collaborating physicians. For many patients, the centers are their only option for accessible and affordable care. In addition to the incredible menu of services provided, NMHC are cost effective as demonstrated by researchers at Johns Hopkins University School of Public Health who analyzed Uniform Data

System (UDS) data from the Bureau of Primary Health Care for 1996 to 2001 found that medical encounter costs at nurse-managed federally qualified health centers (FQHCs) were 11 percent less than encounter costs with other providers (NNCC, 2009).

Convenient care clinics (CCCs) are a rapidly expanding, affordable, accessible, consumer-driven health care alternative. There are close to 1,200 of these clinics in high-traffic retail outlets, often with a pharmacy adjacent, in more than 30 states and the District of Columbia, reflecting a capacity to see more than 17 million patients annually, a number that is easily scalable (CCA, 2009). Generally open 7 days a week, with extended weekday hours, patients are seen on a walk-in basis and visits typically take 15–20 minutes. Common treatments and diagnoses include cold/flu, rashes/skin irritation, and muscle strains or sprains. CCC clinicians, the majority of whom are nurse practitioners, also provide immunizations, physicals, and preventive health screenings. CCCs complement the medical home by connecting patients to appropriate levels of care. The low cost and accessibility of CCCs also lessen demand on emergency rooms.

Northwest Colorado Visiting Nurse Association serving rural and frontier Colorado has begun a redesign of community health services with a focus toward cost efficiency, well-being, primary care and prevention, and a simplification of the medical system. The new vision of health for Northwest Colorado includes evidence based programs, best practice models and visible amenities encouraging wellness, prevention and health. By segmenting the population into five groups: Healthy Beginnings (0–3 years), Healthy Growing (3–19 years), Healthy Living (19–49 years), Healthy Aging (50 years and up), and Healthy Endings (all ages), the VNA has created a continuum of services and an integrated model of service delivery. Through early identification and detection, and community health education, residents are channeled into primary care and a true medical home model. In the past year the VNA has opened a hospice and palliative care residence, implemented an award winning Aging Well program, and opened a Federally Qualified community health center. Nursing leadership has been central to the holistic, community-based vision.

RECOMMENDATIONS

Policy makers, funders, educators, and practitioners must look beyond the medical model as the sole solution to community health needs and recognize the contribution nursing and nurse practitioners (NPs) are making to primary care and the health of the entire community. The following recommendations strengthen the nursing role in future innovations.

- Develop and implement performance indicators like those used by the Commonwealth Fund's State Scorecard, to monitor whether the health

improvement strategies are being implemented as intended and whether it is having the intended impact.

- Require the insurance industry to recognize and fund nurse practitioners as primary care providers with a full scope of practice.
- Require nurse participation on national quality committees charged with developing and implementing health information solutions, public health, community and school-based health, development of performance measures, reimbursement formulas, scientific research, clinical guidelines, and potential business solutions to help health reform in our country.
- Increase the awareness of our legislative leaders and policy makers of the role and impact of nurses using social marketing and targeted education of the insurance companies, boards of health, and business community especially the HIT Industry.
- Educate the public about the role and impact of nursing to help fill the healthcare gaps and provide access to care.

Nursing is an essential component in researching, developing and implementing community based health programming.

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SCHOOL NURSES, SCHOOL-BASED HEALTH CENTERS, AND PRIVATE PROGRAMS SUCCESSFULLY IMPROVE CHILDREN'S HEALTH

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“Investing in children is not a national luxury or a national choice. It’s a national necessity.” Marian Wright Edelman

INTRODUCTION

School nurses serve nearly 50 million students in approximately 97,000 public elementary and secondary schools (USDE, 2008). Sadly, almost a quarter of the nation’s schools do not have the benefits of a skilled nurse, and yet studies like one conducted by the Milwaukee Public School System found that “in schools with nurses, principals and clerical staff reported significant reductions in the time that they spent addressing student health issues. In support of students attending classes, nurses returned students to their classroom over 90% of the time” (Baisch et al., 2009).

HISTORICAL AND CURRENT OVERVIEW

Nurses have been a part of the school setting since the late 1800s, with the initial mandate to monitor vaccinations, decrease school absenteeism, and prevent the spread of communicable diseases. In the last 10 years school nurses have concentrated on new areas of care that have emerged as a result of

- Medical advancements that allow children with multiple medical issues to survive;
- A rising incidence of diseases with life-threatening implications like diabetes, seizures, severe allergic reactions, asthma, bleeding disorders, and genetic conditions;
- An increase in mental health disorders, including rising incidence of autism and related neurodevelopment disorders; youth gambling, alcohol, tobacco, drug abuse, and other addictive behaviors; youth with eating disorders, anxiety, depression, and suicidal ideation; youth exhibiting bullying, harassment and violent behaviors; and
- An increasing number of children living in poverty, including those who are homeless, migrants, immigrants or refugees.

As school districts face budget cuts nationwide, school nurses are often the first to lose their jobs. This is especially true in states that do not mandate school nurses. The federal government requires that children who have health impairments need to have a connection with a school nurse, but in many school districts this may mean contracting for a few hours of nursing service from an agency source. The national federal guidelines for school nurses are a ratio of one nurse to 750 students. Only 12 states comply with this ratio—Vermont has the lowest ratio: one nurse for 305 students, Utah the highest: one nurse for 4,952 students (Zaslow, 2006).

The current nurse-to-student ratio means that nurses cover multiple schools and run from one emergency to another. To address the current inadequacies where nurses face work overload, nurse leaders, together with parents, children, and communities have developed two innovative school health programs: school-based health centers and public-private partnerships, that can be replicated nationwide and can provide many new and exciting opportunities for nurses to expand their scope of practice.

SCHOOL-BASED HEALTH CENTERS

School Based Health Centers (SBHCs) are primary care clinics in the schools that provide developmentally appropriate physical, emotional, behavioral and preventive health care to students regardless of their ability to pay. SBHCs are similar to a local primary care office: with a secretary or receptionist, nurse, nurse practitioner, and at some sites a mental health therapist. Currently there are 2,000 SBHCs nationwide, and have had the following positive impacts:

- SBHCs are prevention and wellness oriented.
- SBHCs see children who otherwise would not get care.
- One in four adolescents who are at risk for adverse health outcomes such as teen pregnancies, suicide, and substance abuse can easily and readily access services in a setting where they spend the majority of their days.

Nationwide satisfaction surveys indicate that 97 percent of the students appreciate and value the care they receive; and 60 percent report that they would not have received health services without the health centers (Schlitt, 2007).

SUCCESS: SCHOOL NURSES AND SBHCS COMPLEMENT EACH OTHER

Jack, a 10th grade student at a local high school, had been to school only 11 days as of December 1, 2008, due to sickness. The school nurse reviewed the absent record with Jack. Jack complained that he would become short of breath walking the half mile to school so he stayed home. With parent permission, she referred Jack to the SBHC. The nurse practitioner diagnosed Jack with asthma

and prescribed medication. During the exam she also noted symptoms of depression and referred Jack to the mental health specialist at the SBHC. The mental health specialist confirmed the diagnosis of depression along with suicide ideation and additionally the potential to do harm to himself and others. Jack has remained under the care of the practitioners in the SBHC. December 1, 2009, Jack continues with a stellar attendance and academic achievement record. His asthma and mental health conditions are under control through the combination of care delivery between the school nurse and the staff in the SBHC. This partnership has been successful in keeping Jack safe and healthy and engaged in learning.

PUBLIC–PRIVATE PARTNERSHIPS INITIATED BY SCHOOL NURSES

Another innovative example in school health programs are the public–private partnerships that nurses are developing in communities around the country. One of the primary tenets of a nurse is to be a coordinator of care. In research studies conducted by both Lamb and Sofaer, care coordination is identified as one of the most important processes that nurses perform. The IOM has identified care coordination as one of the top 20 priorities for national action to transform the health care system. In the community, the school nurse coordinates care in the public school among a variety of providers and community agencies that offer services to children and their families. The nurse can provide point of service care at the site and manage almost all of the health concerns that students present. This arrangement increases the student’s time in the classroom and maximizes education. The nurse is also in an ideal position to guide children and their families into appropriate acute care, if needed.

SUCCESS: NURSES DEVELOP COMMUNITY PARTNERSHIPS

Michigan is experiencing the brunt of the economic downturn with their automotive manufacturing base disintegrating. They have been forced to create a model of public–private partnership in order to provide health care to one of their most vulnerable populations: children. The Michigan model has placed the nurse in the driver’s seat of coordinating care in the school. Funding is primarily provided by the both the health system and the educational system. However, the school nurse typically coordinates over 80 community agencies to provide services for students and their families. This coordination equates to thousands of in-kind hours and dollars. None of which would happen without the nurse.

The Michigan model has utilized Community Health Workers (CHWs) in their schools as well. It is imperative to note that this is only under the supervision of the registered nurse. The broadened responsibility has challenged nursing to gain new leadership and delegation skills. This model requires clear practice guidelines and health policies developed by the state board of nursing and adapted by the school system. The school nurse is the health leader in the school

community. She has demonstrated leadership in delivering health outcomes, reducing costs, and providing extraordinary benefit to the community. This model has also been replicated and is exportable.

RECOMMENDATIONS AND ACTIONS NEEDED

Certificated School Nurses need to be present in the schools in order to advocate for school nursing services for every child. SBHCs contribute to academic achievement by taking physical and behavioral health problems out of the classroom and place them into the hands of qualified medical professions and link students to health services and resources available in the community. Through collaboration with community providers and building public–private partnerships, primary care, mental health, health education and dental care services can be provided at little or no cost to the students and their families. Improved student outcomes and academic achievement result where schools have a partnership with a school nurse, an established SBHC, and community collaborations.

- Mandate a certified school nurse/student ratio of 1:750 students in every state and in all schools.
- Allocate federal and state governments funds to school-based health centers so that all students, regardless of their ability to pay, can access comprehensive medical, dental and mental health care by nurse practitioners, nurses, and other health care professionals.
- Establish funding for school health development of public–private partnerships, including community health worker programs that are led by certified school nurses.
- Require nurses who work in schools to have a minimum of a bachelor's degree and a school nurse certificate.

SUMMARY

With an expected increase in the number of children who have complex medical, genetic and psychiatric health conditions that require more nursing oversight, school nursing provides the expertise and coordination to assure that children receive the care they need. School nurses are at the forefront of promoting and developing innovative school programs like School-Based Health Centers and coordinated partnerships with private and public agencies.

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PUBLIC HEALTH NURSING: TRANSFORMING HEALTH ACROSS POPULATIONS

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INTRODUCTION

A well-educated public health nursing workforce would improve the health of all people and minimize health differences among populations by addressing the physical and social determinants of health (Manitoba Health, 1998). Public health nursing is unique among the nursing specialties in its integration of the art and science of two distinct disciplines—public health and nursing. Public health nurses (PHNs) employ their considerable expertise in promoting health and preventing disease to address the health needs of populations, such as emerging and reemerging infectious disease, an epidemic of chronic disease, a rapidly aging population with increasing health needs, escalating health care costs, and pressure to prepare for and respond to public health emergencies ranging from H1N1 influenza to bioterrorism. Many of these challenges cannot be resolved at the individual level and must be addressed through policy and environmental change. PHNs work in partnership with multidisciplinary teams and community members to create conditions in which people can be healthy.

PUBLIC HEALTH NURSING ISSUES

As the largest component of the public health workforce, PHNs are vital to the protection of health in America's communities; almost every health department in the nation, large or small, employs PHNs (NACCHO, 2009). Unfortunately, public health nursing is in the midst of a crisis—the erosion of the public health nursing infrastructure.

- Historically, every state health department had an executive PHN position. Today, only 23 states support such a leadership position (ASTDN, 2008). Severe budget cuts in local and state health departments have led to the reduction or elimination of PHN positions. In 2004, decrease was reported in registered nurses working in community and public health settings, down from 18.3 to 14.9 percent (HRSA, 2004).
- Health departments currently face a PHN shortage; 30 out of 37 states

reported public health nursing as the field that will be most affected by workforce shortages in the future (ASTHO, 2004). This critical PHN shortage may jeopardize the system's ability to respond to new and emerging public health threats.

- Many health departments, particularly those in more rural states, hire nurses from 2-year associate degree programs that do not provide public health content, and who are not prepared to practice public health nursing.
- The educational system faces a growing shortage of faculty adequately prepared to teach public health nursing, a lack of clinical sites that provide meaningful PHN clinical experiences, and little incentive or support for advanced PHN graduate study, which has led to low enrollment in PHN graduate programs.

EVIDENCE-BASED PUBLIC HEALTH NURSING MODELS ELECTRONIC HEALTH RECORDS AND PUBLIC HEALTH NURSING OUTCOMES

A joint practice and data quality project was undertaken by public health nurse managers in four local health departments. The project utilized the Omaha System, a standardized nursing language and a computerized clinical documentation system. This project articulated standards for client assessment, developed pathways of care for typical PHN client groups and/or client problems, and defined common quality assurance standards to monitor PHN practice and data quality. Standardized data allowed PHNs to compare client outcomes between health departments. As a result, public health nurses were able to influence policy decisions by reporting data to funders, stakeholders, and the community (Monsen et al., 2006).

HOME VISITING PROGRAMS

The Nurse Family Partnership (NFP) is an evidence-based program in which public health nurses visit the homes of pregnant, low-income families during pregnancy and teach them to parent during the baby's first 2 years of life. This program has demonstrated consistently positive outcomes in randomized controlled trials, including pregnancy (reduction in subsequent pregnancies 2 years after child's birth, reduction in preterm deliveries among women who smoked), parenting (less child abuse and neglect, reduction in behavioral and intellectual problems in child age 6, reduction in arrests of child age 15), and family self-sufficiency (fewer arrests of mothers 15 years after child's birth, increase in father presence in the household, reduction in welfare use) (NFP, no date). The program has been shown to save taxpayers money, paying for itself based on government spending alone (Isaacs, 2008). It is important to note that nurses are central to the success of this home visiting program. Utilization of paraprofessionals to

deliver the NFP demonstrated little to no effects as few as 2 years after program completion (Olds et al., 2004). PHNs across the nation are implementing the NFP in over 300 counties and several statewide programs. Various versions of the Health Care Reform Bill of 2010 have proposed nationwide implementation of the NFP. Public health nurses, with over a century of expertise in home visiting and established relationships with their communities, are in a position to lead this national initiative.

PREVENTION AND CONTROL OF INFECTIOUS DISEASE

Not all evidence-based programs are new. Public health nurses continue as critical players in some of the most dramatic evidence-based programs in history—the eradication/reduction of vaccine preventable diseases and tuberculosis. A recent PHN task analysis of 60 PHNs from 29 states revealed that the detection, prevention and control of infectious diseases are core public health nursing activities (ASTDN). Despite the fact that the PHNs in the task analysis worked in many different program areas ranging from emergency preparedness to family planning, they were all involved with the prevention and control of vaccine preventable diseases and tuberculosis.

Over 90 percent of PHNs reported working in immunization clinics, a classic evidence-based intervention. Most of the disease prevention and control work that the PHNs reported was population-focused: surveillance and disease investigation; identification and outreach to high risk populations; audits of immunization records in schools; audits of clinics to determine compliance with recommended immunization standards; and development of population-based immunization registries. As part of emergency preparedness, half of the PHNs were involved in planning and staffing mass dispensing clinics.

Tuberculosis (TB) is a similar cross-cutting issue. Three fourths of the PHNs reported that they work with clients who have latent or active TB; over 80 percent of PHNs administer and read tuberculin skin tests. The current CDC recommendation for the treatment of persons with TB is Directly Observed Therapy (DOT), or watching clients take their medications to ensure compliance. Over two-thirds of PHNs in the task analysis reported that they conduct Directly Observed Therapy home visits. Evidence demonstrates that PHN case management dramatically increases successful DOT completion rates (Mangura et al., 2002). In 1994, Massachusetts mandated that health departments use nurses to assess suspected TB cases and manage treatment, resulting in completion rates between 93 and 95 percent, which are among the highest in the nation (Geiter, 2000).

REINVIGORATING PUBLIC HEALTH NURSING EDUCATION

Two federal grants—one in Minnesota and another in Wisconsin—developed a new model for public health nursing education. “Linking Public Health Nursing Practice and Education to Promote Population Health” and “Linking Education

and Practice for Excellence in Public Health Nursing Project” (<http://www.son.wisc.edu/LEAP/>) brought together public health nursing faculty from baccalaureate schools of nursing with public health nurses from local health departments that provide clinical sites for PHN students. They formed regional projects that redesigned the PHN student experience based on community priorities. Both projects recruited, trained, and supported a network of preceptors. These projects resulted in a significant increase in collaboration among and between schools of nursing and local health departments, expansion of clinical placement sites, student clinical experiences that contribute to meeting the goals of local health departments, a more active role for local health departments in assuring competencies necessary to begin PHN practice, greater emphasis on population-based PHN practice in schools of nursing curricula, and increased numbers of graduates indicating interest in pursuing a career in public health nursing.

RECOMMENDATIONS

A well-prepared public health nursing workforce in numbers sufficient to deliver essential public health services is critical for the health and economic well-being of communities. Public health nurses possess a core set of skills and knowledge that allow them to adapt to ever-changing community needs. In order to achieve public health nurses’ potential, however, they must increase their visibility and policy advocacy.

Education and Leadership Development

- Partner with PHN organizations to create leadership development programs for PHNs in federal, state and local health departments. This is particularly important for state PHN leaders, of whom 80 percent are new to their job since 2005.
- Advocate for public health nursing leadership positions in all state health departments.
- Develop new models to fund, prepare and advance associate degree nurses who are working in PHN positions.
- Develop and share effective, innovative strategies to teach public health nursing, including clinical simulations, cross-disciplinary classes, and clinical immersion experiences in the community.
- Provide incentives for graduate school, including traineeships and loan forgiveness programs for advanced PHN graduate study.
- Develop and disseminate a tailored curriculum for teaching public health nursing.
- Work with stakeholders to conduct a national enumeration to determine the actual number, educational preparation, and distribution of PHNs in the United States.

Public Health Policy

- Fund research to better articulate the contributions and outcomes of public health nursing interventions. Unfortunately, when public health nurses are doing their jobs well, they are invisible and their work is often not valued.
- Market the pivotal role of PHNs to increase political influence and secure more funding.

The flexibility, versatility, and passionate commitment to the communities they serve place PHNs in a position to lead the changes necessary for creating the conditions in which people can be healthy.

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