Advancing Evidence-Based Practice in Rural Nursing

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Evidence-based practice is widely viewed as a mechanism to improve the quality of patient care. Many large systems of care, applying for Magnet recognition, are currently integrating research into the delivery of nursing care through organizational change. Unfortunately, rural hospitals often lag behind in regard to the implementation of new technologies and procedures, and this may also hold true in regard to evidence-based practice, thus influencing the quality of care received by rural residents.

Evidence-based practice has been defined as the process of combining the best evidence available with nursing expertise and patient and family preferences to determine optimum care (Titler, Mentes, Rakel, Abbott, & Baumler, 1999). In 2004, in its revised scope and standards of practice, the American Nurses Association (ANA), for the first time, placed major emphasis on evidence-based interventions as foundational to the plan of care. More recently, the Institute of Medicine (2005) released a report on Rural Health Care that emphasized the importance of information and technology infrastructure and evidence-based practice for achieving rural quality healthcare.

Although much is written on the value of research evidence for nursing practice, nurses are just beginning to focus on developing the means to translate research into nursing practice. Gerrish and Clayton (2005) surveyed 330 bedside nurses to examine the barriers they perceived to accessing evidence-based information and effecting change in practice. They found that nurses drew on knowledge acquired through their interactions with patients and colleagues, ranking these sources of information as first, second, or third. Information obtained from research and medical journals ranked 13 and 14, respectively, out of a list of 18 sources. Participants identified barriers to reviewing research journals, including lack of time, lack of availability, and lack of confidence in judging the quality of research. Hutchinson and Johnston (2006) reviewed 30 studies published between 1991 and April 2005 that used the BARRIERS Scale to measure nurses’ perceptions of barriers to research utilization. They found that commonly reported barriers in these studies included lack of time, lack of confidence in critical appraisal skills, lack of authority, organizational infrastructure, lack of support, lack of access, and lack of evidence. Pravikoff, Tanner, and Pierce (2005) reported many of the same barriers in a study of over 1,000 U.S. nurses working in clinical settings.

Recently, work has begun on developing models to guide the implementation of nursing research into practice. The Iowa Model of Evidence-Based Practice, for example, emphasizes organizational change based on a...
thoughtful critical review of pertinent research and evidence, pilot testing of practice changes prior to full implementation in the organization, and evaluation prior to complete adoption into practice (Titler et al., 2001). The authors suggest prioritizing topics and forming a team who will be responsible for development, implementation, and evaluation of the evidence-based practice.

Most of the original work on the Iowa model was completed at the University of Iowa Hospitals and Clinics, a large healthcare system with multilevels of organizational oversight (Titler et al., 2001). This system included multidisciplinary support of on-site pharmacists, therapists, psychologists, physicians, and informational specialists, including on-site library and research services.

Rural hospitals, however, lack some of these advantages and may have unique barriers to using an organizational model such as the Iowa Model of Evidence-Based Practice to guide the implementation of research into practice. Nearly 20% of the United States’ population live in rural areas (Institute of Medicine, 2005), and nurses comprise the largest group of healthcare professionals in these areas (Spencer & Morgan, 2001). Each rural area is distinctive in regard to demographics, environment, economic and social characteristics, and remoteness from urban areas. These distinctions influence the types of health problems that these communities face (Institute of Medicine, 2005). In general, rural people have higher rates of infant and maternal morbidity rates, chronic illnesses, mental illness, and lower rates of health insurance than urban Americans do (Bushy, 2005).

Concerns about rural health services, especially in regard to health professional shortage areas, have become a national priority since 1990 (Bushy, 2005). In general, there are fewer physicians, specialists, baccalaureate-prepared nurses, and advanced practice nurses. Multidisciplinary support may be available on a limited scale, and informational specialists may not exist. In 1997, in an effort to ensure delivery of healthcare services in underserved rural areas, the federal government designated critical access hospitals (U.S. Department of Health and Human Services, n.d.). These facilities are located more than a 35-mile drive from other hospitals or certified by the state as a necessary provider. However, little is known about efforts to implement evidence-based practice in rural hospitals.

The purpose of this pilot study was to examine the factors influencing the achievement of evidence-based practice in a small rural hospital.

**METHODS**

**Setting**

The hospital involved in this project lies 40 miles from the Minneapolis and St. Paul metropolitan area. In 2005, the 65-bed hospital had 2,715 inpatient admissions, 597 births, and 55,015 outpatient visits, including emergency room visits and same-day surgeries. The hospital employs a chief nursing administrator and six nurse managers, five of whom have baccalaureates and two of whom have master’s degrees. The parent organization is a large integrated healthcare system of 11 hospitals, approximately 40 clinics, medical transportation, pharmacy, home care, and hospice services. Five of the 11 hospitals are housed in the seven-county state-designated metropolitan area; five of the hospitals are outside the metropolitan region. One of the hospitals is a critical access hospital (U.S. Department of Health and Human Services, n.d.).

System-wide library services are available to all employees and affiliated providers through a combination of online resources, document delivery, and professional research and training services. Physical library spaces are supported at several of the metro-area hospitals, with print book and journal collections, as well as end-user computer workstations. Increasingly, the emphasis is on making the collection more accessible to all care providers and decision makers in the health system. Without physical library spaces at the regional hospitals, however, it is a challenge to promote and encourage the use of library services in support of evidence-based practice. Bedside nurses and charge nurses at the study hospital had little awareness of research utilization, freely available evidence-based summaries or guidelines, and research retrieval techniques. However, nurses voiced interest in the possibilities associated with use of the information to advance their practice, solve current nursing problems, and provide better patient care. This interest laid the groundwork for a collaborative effort between the authors, one of whom was a member of the nursing faculty at a regional university and one of whom was an information specialist employed by the parent organizations of the hospital, and the local hospital.

The Iowa Model of Evidence-Based Practice was used as the framework for the intervention, which consisted of a 2-hour educational presentation with interactive learning exercises by the nurse faculty member and information specialist. The goals of the intervention were to define evidence-based practice and research; describe the evidence hierarchy, including new methods of evidence translation; discuss the importance of evidence-based practice for nurses at the hospital; identify sources of evidence available for nurses and develop skills to access these sources; and finally, apply these skills to an actual nursing practice situation, including searching for evidence, identifying the “gap” or the differences between the evidence and current nursing practice, and integrating the new evidence to change nursing practice with support of other hospitals or certified by the state as a necessary provider.
the organization and policy changes. Library services, with the assistance of the information specialist, were available to the participants after the intervention.

One advantage noticed by the collaborative team at the facility receiving the intervention was the use of the electronic medical record. The rural hospital had pilot tested the electronic record for the parent organization in August 2004. This same electronic record at the time of this writing continues to be implemented at the remaining hospitals within the organization. At the top of the electronic medical record is a “Links” drop-down menu that includes a link to the Library’s intranet Web page. This page is the portal to all the electronic content made available by the library, including databases, full text journals, and books. A complete list of all resources is included on the page, in addition to targeted resource pages, such as those for nurses who focus the resource links to specific populations.

Attendees were identified by nursing administration as “key leaders” within the small hospital and included 13 registered nurses, specifically 6 members of the Practice Board, 1 nurse manager, 1 assistant nurse manager, 3 from the education department, and 2 other nurses who facilitate community programming. The Practice Board was designed to strengthen nursing practice and promote professional nursing within the hospital. Members are selected after application to the Board and include the hospital nurse administrator, unit nurse manager, nursing supervisor, and bedside nurses. Approval for the pretests and posttests and submission of the publication were given by the parent organization and the local hospital administration. Participants were informed of the purpose of the tests and their participation implied consent.

Data Collection

Prior to the intervention, the 13 participants completed a survey on their background and experience. The majority reported not having had a research course in their nursing program (66%). Furthermore, 70% reported having little or no experience conducting computer searches for current research or evidence, whereas 30% reported being “very able” to perform computer searches. Approximately 60% reported not having used the healthcare system’s library Web site to obtain new information or using it less than two times in the past year. Approximately 60% reported not having used or using research or evidence less than twice in the past year to change their practice. Approximately 88% rated their ability to critique research at a level from “somewhat able to do so” to “never having done so,” with 11% rating themselves as very able to critically review research.

The survey included a section for participants to comment on barriers associated with failure to implement new research findings into practice. Five barriers were identified: having other priorities for work, the system, lack of computer access and knowledge, lack of interest in research, and other. Comments on lack of computer access included “lack of access to a computer,” “home computer too slow,” “don’t know where information is on the computer,” and “lack of instruction and experience.” Comments on the system included “nonemphasis from the working environment,” “seasoned nurses who are not members of specialty organizations and primarily worked careers at the small rural hospital lack interest,” “it’s not something I’ve thought about doing,” and “my managers seem to produce enough change without me looking for it.” Comments on other included “lack of interest in research,” and “other stressors.”

RESULTS

Three months after the educational intervention, nurse participants were asked to complete a follow-up survey that was identical to the survey given prior to the intervention. Seven of the 13 registered nurses completed the evaluation, 4 of whom were members of the Practice Board who also provide bedside care, 2 were nurse managers, and 1 was nurse educator. Those not completing the follow-up survey were the nurses facilitating community programming, 2 from the Practice Board, and 1 assistant part-time employed nurse educator. Of those completing the survey, 4 reported having had a research course in their nursing program and 3 did not. Six of the nurses reported occasional use (two to three times) of research or evidence in the past 3-month period, and 2 reported infrequent use (once in 3 months) after the educational intervention. Six reported being “somewhat able” to critically review research, and 1 reported never having tried to critically review research. Participants were asked to make written comments regarding barriers following the intervention in accessing new research. Responses included lack of time, other work commitments, and continued lack of computer knowledge or inability to search topic. One nurse reported that she experienced a “change in her mindset,” as she now requires the nurses in the education department to search for evidence before preparing continuing education programs.

Lastly, nurses were asked to make written comments regarding changes that the management could make to support nurses in accessing evidence. Three strategies were identified: more ongoing learning opportunities, expectations set by leadership and leadership modeling, and supporting collaboration (outside
the hospital) with nurses who had research expertise. Comments on more ongoing learning opportunities included “asking information specialist to do search”; “provide ongoing learning opportunities, such as having a continuing education activity, or having this presentation repeated”; “incorporating this presentation into the electronic medical record training”; and “repeated demonstration on how to look up information.” Comments on expectations by leadership included “leadership needs to set expectations such as committee chairs or during committee work and then leadership needs to model this change in their practice,” “leadership needs to hold people accountable for this,” and “leadership needs to encourage bedside to use information in their practice and when educating patients.” Finally, comments on supporting collaboration with nurses who have research expertise included “pair me with someone like yourself (nurse faculty) to examine research,” and “development of the parent organization support for these activities is needed in regard to their involvement in evidence-based practice, policies, and care planning.”

DISCUSSION

Most of the key leaders identified by nursing administration from this rural hospital who attended the educational presentation had limited prior understanding of evidence-based practice and limited skills in searching and applying evidence to their practice. They varied in education and degree, length of time post-education, informatics and research/evidence coursework in their nursing program, and number of years in practice. Of the 13 nurses who attended, only 1 nurse was a recent baccalaureate graduate (within the past 5 years), and she demonstrated the most expertise and confidence during the intervention. Her comment at follow-up illustrates the major obstacle to implementing evidence-based practice at the hospital: “In between Practice Board meetings, I search and gather research literature to address the problems brought up during the meetings. But when the Practice Board meets again, no one else has searched for any articles and no one leads the group or creates a follow-through in which we discuss or examine the information I bring back to the meetings. It seems as if no one (management) cares about the evidence or knows what to do from here.”

This situation reflects the kind of education that nurses have had. Most practicing nurses who entered the profession 10 or more years ago were educated in an era when research coursework in educational programs was minimal at best. These nurses have little awareness of research, and they lack the knowledge and skills needed to critique research and implement evidence in their practice. Even today, not all educational programs are preparing students to use research. Students in baccalaureate programs receive coursework on research and evidence, but this is not the case for the many nurses who enter the profession from associate degree programs. Approximately two thirds of registered nurses entering practice in Minnesota have earned an associate degree at the time of licensure (Minnesota Board of Nursing, n.d.). This lack of research coursework results in a lack of competence in research appraisal and utilization by the bedside or first-level nurses.

If nurses in rural hospitals are to begin implementing evidence-based practice, dramatic staff development efforts will be needed. Krugman (2003) has described the role of staff development experts in building a culture of evidence-based nursing practice at the hospital level, including training in inquiry skills, and development of hospital-wide policies and procedures based on best evidence. Competencies for evidence-based practice would be reflected in job descriptions and performance standards.

The cost of staff development will be a factor for rural healthcare facilities in regard to implementation. In addition, it is not clear whether there will be adequate and available experts in rural areas to educate staff in evidence-based practice or whether facilities even have access to library or informatics systems or the money to subscribe to these systems.

White and Taylor (2002) argue that the technical complexity of research is too great to be mastered in entry-level nursing programs and suggest that nurses educated at entry level should have practice as their main role. White and Taylor support a model in which entry-level educational programs introduce research and create an appreciation of research methods in the first-level nurse, rather than expecting them to be experts in the technical aspects of research. They think that only some nurses need to have the expertise to appraise research. Similarly, Quinlan (2006) notes that master’s-prepared nurses have the knowledge and skills to be able to critique research and implement research findings into practice.

The question is whether these experts will be available to assist rural hospitals in implementing evidence-based practice. According to the Minnesota Department of Health (n.d.), there are 38,261 registered nurses active in Minnesota, and less than 3.5% of these nurses are advanced practice nurses in which a master’s or higher level of education is required. Major metropolitan health centers frequently employ nurses prepared at the graduate level; however, nurses at the master’s or higher level are in very short supply in rural areas. It is unknown how many of these advanced practice nurses are employed in rural hospitals; however, the U.S. Department of Health and Human
Services (n.d.) describes shortages of healthcare providers, including shortages of nurses with advanced or graduate degrees in rural areas. Furthermore, there may not be financial support for employing these nurses, especially during times of budget shortfalls and lack of financial growth and stability in rural healthcare systems.

Another finding of this project was that although incremental change appears likely to happen for a few nurses, major hospital- or organizational-wide change appears unlikely unless leadership within the hospital and/or from the parent organization evolves. Organizational culture and leadership are important factors in implementing change into the work setting, and for change to be successful, leaders must facilitate staff engagement (Quinlan, 2006). It is challenging for nurse managers to support evidence-based practice when they do not have the requisite knowledge and skills themselves, and as can be seen by this project, these managers have had the same similar limited exposure to research in nursing education as do their staff. Dramatic staff development efforts will be needed to get nursing management to support efforts.

In addition, nursing management will need support from the administration. One area of administrative support could come from the parent organization, as the hospital is a member of a larger health system, if the parent organization supports an evidence-based nursing culture. However, geographic limitations such as distances from central administration and resources can make sustained efforts tenuous at best. Centralized administration, by its structure, lacks the ability to directly oversee distance sites with any frequency, and in addition, these rural hospitals frequently existed independently prior to the merger with the parent organization. This spirit of independence may continue despite various and/or ongoing efforts for organizational changes spurred by the parent organization.

There is a need for ongoing learning opportunities involving informatics and research retrieval techniques and strategies, including ways to critically evaluate the credibility of online sources of clinical information. Unfortunately, as can be seen by the results of this project, the rural system lacked information specialists and libraries on-site to assist them first hand, although promotion and outreach visits from corporate shared library service could help with this problem. Also, the implementation of the electronic medical record in rural hospitals provides a way to introduce the use of evidence-based resources. For rural hospitals not affiliated with a larger health system, it may be possible to contract for library services. There are also many resources, such as PubMed, that provide free search engines, but securing the actual research reports may continue to be a problem.

These nurses recommended ongoing collaboration with nurses at the parent organization who have research expertise to aid them in further developing their research searching and critiquing skills. As seen in this project, the nurses at this hospital lacked mentors from within their own institution to maintain the impetus required to further their development. Only two nurses within the hospital were prepared at the master’s level, and it is unknown when or in what area of specialty their master’s degree was obtained.

For nurses practicing in rural areas, collaboration with others outside their own hospital will be necessary. Collaborative partners may include nurses with master’s degrees employed at neighboring hospitals, nursing faculty and information specialists at regional universities and colleges of nursing, and other healthcare organizations.

For this rural hospital, the collaborative environment established between the hospital and the university through the presentation project will continue. Plans include having the nursing students enrolled in the research course complete a literature search for practice problems identified by the Nurse Practice Board. The Practice Board will host a luncheon for the students to verbally present their findings to the Board and interested nurses at the end of the term. This relationship will foster an authentic project for the students in which to develop their professional identity and will benefit not only the hospital but also the nursing students. As Paramonczyk (2005, p. 15) urged, individual nurses need to accept “full professional responsibility” for keeping informed of research developments in their area of practice.

Although linkages such as these benefit rural hospitals, they do not address the growing disparity between Magnet status and rural hospitals in regard to evidence-based practice. If all rural hospitals and especially critical access hospitals are going to ensure delivery of healthcare services, other mechanisms will need to be developed to advance evidence-based practice. Arizona has begun work on the first statewide consortium for evidence-based practice spearheaded by Arizona State University’s Center for Advancement of Evidence-Based Practice (Melnyk & Fineout-Overholt, 2006). The collaborative agencies are working together to establish a formal mentoring mechanism for clinicians. In addition, the Arizona State University College of Nursing began offering 1-week evidence-based practice immersion programs.

**LIMITATIONS**

Limitations of this pilot project include the use of a small nonrandomized sample of nurses at one small hospital. The intervention was very limited in time and
scope, and lasting organizational change or change in cultural climate cannot be expected.

CONCLUSION AND RECOMMENDATIONS

The initial steps in implementing the Iowa Model of Evidence-Based Practice (Titler et al., 2001) of organization change to facilitate and promote evidence-based practice is team forming. For this rural hospital, the barriers that included limited prior knowledge, along with the ongoing needs of further skill development and a lack of leadership from administration, make the initial step of forming a team unlikely to happen without outside support. If a team did form, it would most likely have to look elsewhere, beyond the organization, and depend on collaborative partners to work together and to mentor nurses to assemble relevant research and critique the research for use in practice. As stated by Melnyk and Fineout-Overholt (2006, p. 5), “silo-based initiatives in practice, education, and research must cease and be replaced with interdisciplinary statewide consortia.” Perhaps, one avenue to explore is the rural health initiatives established by the U.S. Department Health and Human Services Office of Rural Health Policy. These initiatives may be excellent places in which to start this dialog using the Arizona Model (Melnyk & Fineout-Overholt, 2006) as one framework for planning.

Furthermore, state Boards of Nursing should examine the competencies required of nursing programs that graduate licensure candidates today. With the increased emphasis on evidence-based practice standards set by the American Nurses Association in 2004 and the report on rural healthcare of the Institute of Medicine (2005), nursing competencies must include informatics, research retrieval techniques, the ability to critically evaluate the credibility of sources of evidence, and continuous quality improvement of practice through the use of the latest evolving body of evidence. New nurses entering the profession in any region of the country need this basis in which to understand evidence-based practice. Both patients and their families alike deserve the quality of care promoted through evidence-based practice.

REFERENCES

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