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Integrating Research into Practice: How nurses in Wisconsin use research to ensure best practice.

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If, when we ask ourselves, "Why are we doing things this way?," the answer is a rote "Because we've always done them this way," we should consider it a challenge and an invitation to reexamine our practice.

In 1997, nurses in the Metro Region division of Aurora Health Care (Aurora-Metro) in eastern Wisconsin initiated a project directed toward ensuring the consistent incorporation of research into individual nursing practices in order to secure best practice at all sites. By fully integrating research into our work, we can make certain that nursing practice is clearly and unequivocally evidence-based. The goals of this project were twofold: to build on our collective nursing research expertise and accomplishments, and to share such information on an ongoing basis throughout Aurora-Metro's network.

The Aurora-Metro division consists of five hospitals and numerous other sites, which together employ more than 2,700 nurses. At the five hospitals alone, nurses care for half a million patients annually.

Aurora-Metro nurse leaders developed a five-year plan for conducting and using nursing research. It allowed for the participation of nurses at all levels and in all settings and established as objectives the use of multidisciplinary and nursing research findings in the care of patients with life-threatening illnesses who require acute care, and the promotion of health maintenance through broadly replicable interventions. In 1998, the plan was officially implemented. This article describes the variety of strategies used to integrate research into practice.

IMPROVING COMMUNICATION

One of the first steps in the development of the plan was to improve communication. In 1997, the nurse researchers at Aurora-Metro's Nursing Research Center collaborated with the telecommunications staff in writing a proposal for and obtaining a state-funded grant with which they purchased videoconferencing equipment. This equipment allows nursing staff to conduct and share research independently from multiple sites. In 1998, in partnership with the information systems staff, the nurse researchers constructed a nursing intranet of Web pages. These pages include postings of requests for abstracts, grant opportunities, research conference registration information, completed research projects, publications by Aurora nurses, and descriptions of Nursing Research Center services. In 1999, all of Aurora's computer systems were upgraded, allowing nursing staff to search the Internet, the intranet, and Aurora-Metro's medical library. All nurse leaders also gained access to e-mail.

ESTABLISHING GOALS

To reach a consensus on goals that would increase the use of research in clinical nursing practice, Aurora-Metro nurse leaders held several discussion groups with staff nurses, unit managers, clinical nurse specialists, and program directors. We knew that we needed to

- establish structures to demonstrate that the use of research in daily practice was expected of all nurses.
- create reward mechanisms
- collect baseline data on the state of research knowledge, attitudes, and practices in Aurora-Metro's facilities.
- define and implement expectations for research according to the five-year plan.

- evaluate progress in incorporating research into practice.

REVISING OUR STRUCTURE

Aurora-Metro nurse leaders redesigned the compensation model, position descriptions and performance review criteria, the continuing education curricula, and decision-making processes.

Clinical practice developmental model and compensation program.

Nurses at Aurora have been writing stories about their clinical practices for several years. Aurora-Metro nurse leaders collaborated with Patricia and Richard Benner to analyze a sample of 130 of these stories from all inpatient and outpatient areas to develop the Clinical Practice Development Model (CPDM). In 1998, they revised it to create the Metro CPDM, which defines a set of expectations for research use in daily nursing practice that is based both on novice-to-expert theory and on analysis of the clinical practice stories. These expectations were then formalized in the staff nurse job descriptions (see *Research Use Expectations for Nursing Personnel*, page 24E).

Position descriptions and annual performance review criteria for all nursing roles were revised to include research use expectations.

Although such expectations have been part of the clinical nurse specialist role at most Aurora facilities for several years, they were new to the roles of staff nurses, unit managers, and regional or program directors. Because Aurora-Metro nurses are compensated on a graded scale according to their level of expertise, and because greater expertise requires facility with research, there is a financial incentive to improving research skills.

Continuing education.

We worked to reinforce the research basis of clinical practice and to support the use of research to guide care decisions. We believed that nurses would be motivated to use research in practice if they were oriented to this objective upon hire and mentored during their tenure. So each newly hired nurse is now required to review the unit's *Research Resource Manual* during orientation; experienced nurses are encouraged to review it as well. The *Manual* describes how research expectations are integrated into Aurora's system structures. Specifically, it provides instructions for conducting a literature search, evaluating research for use in practice, identifying unit-based research mentors, developing research-based recommendations for changes in practice, and sustaining research-based practice.

Some units offer a mentor program, in which clinical nurse specialists or staff nurses who have completed research use projects work with nurses who haven't. Nurse researchers at the Nursing Research Center or from local universities may also provide consultation services. Aurora-Metro nurse leaders have developed workshops, and at their request, Aurora Health Care has purchased instructional software and installed centralized computer laboratories at each facility. Nurses are also encouraged to start or sustain journal clubs in nursing content areas.

All nurses are invited to participate in an annual research day that offers workshops on conducting research, creating research-based protocols, and using the Internet, intranet, and medical library search engines. Also, about 50 nurses from the Midwest area present their research and research-use posters for discussion and critique.

Decision-making processes.

Although two of Aurora-Metro's five hospitals have had nursing research councils for the past 20 years, other of its facilities have not. As part of our restructuring, we decided to incorporate research council functions into existing councils—specifically, nursing professional development, nursing practice, and nursing management councils. The councils meet every other week (or more frequently, as needed) to guide nursing operations. The councils agreed to use the Iowa Model for Evidence-Based Practice algorithm to direct nurse leaders' decision-making and to guide them in the development of research-based policies and procedures.

Formerly, nurses from various settings might have gathered to determine the commonalities of their practices and to develop policies accordingly. Now, nurses are expected to review the research literature, seek unpublished research at conferences and on the Internet, and confer with experts regarding best-practice guidelines. The information gleaned from these activities is systematically critiqued, and recommendations for best practice are reached in accordance with the Iowa Model algorithm.

CONDUCTING REGIONAL RESEARCH

The authors of this article were selected by Aurora-Metro nurse leaders to form a research team. We developed and validated the 33-term Knowledge, Attitudes, and Practices (KAP) Survey, a data-collection instrument, in order to obtain baseline data regarding how nurses use and conduct research. Each team member had the opportunity to participate in designing the study; preparing the datacollection instrument; collecting and analyzing data; designing poster presentations for Aurora-Metro nursing staff, nurse leaders, and regional research conferences; providing evaluative information to participants; and preparing the study for publication. While conducting the study, we learned how to obtain data from multiple sites, create scannable customized surveys, manage a database of 130 variables and 1,007 respondents, and build enthusiasm for study participation among the nursing staff.

We administered the survey to 2,736 registered nurses employed in Aurora-Metro's facilities in 1997. As expected, the majority (57%) indicated that their research knowledge was lacking. And although many nurses (42%) felt they had moderate ability to conduct research, 47% rated their ability as low, while only 11% rated it as high. Yet 68% indicated that their willingness to engage in research activities was moderate to high. Education and job position were predictors of knowledge of and the ability to perform research but were not related to willingness to conduct research.

Factor analysis was subsequently performed on the KAP Survey results, and we developed a shorter, 16-item survey, the Nurses' Research Use KAP Survey. Nurses new to Aurora-Metro complete the shorter survey during orientation.

Working with other Aurora-Metro nurse leaders, some of us also designed a 16-hour Research Utilization Education Workshop, which is offered in four four-hour segments over a two-month period. Participants take the Nurses' Research Use KAP Survey at the both beginning and the end. During the workshop, mentors guide groups of nurses in the identification of a specific clinical problem related to an organizational goal or ways of improving a unit's performance in quality indicators (such as pain management, and patient satisfaction with discharge education). Group participants also learn to critique research literature related to their topic, and to design and implement an evidence-based protocol to improve patient outcomes.

Table: Research Use Expectations for Nursing Personnel

Nursing personnel position	Research use expectations in annual performance review criteria
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Clinical practice (staff) nurse Stage 1	<ul style="list-style-type: none"> • With guidance, is aware of the research basis for policies and procedures, measuring tools, and recommendations guiding clinical practice
Stage 2	<ul style="list-style-type: none"> • With mentoring, follows organizational policies and procedures and uses valid measuring tools and research-based recommendations to effect positive patient and family outcomes
Stage 3	<ul style="list-style-type: none"> • Is aware of and applies research-based findings to develop individualized plans of care, based on patient needs and organizational policies, procedures, and protocols, aimed at achieving positive patient and family outcomes
Stage 4	<ul style="list-style-type: none"> • Integrates and translates research-based knowledge and experience into well-defined actions that help achieve positive patient and family outcomes
Stage 5	<ul style="list-style-type: none"> • Collaborates with other caregivers to challenge current practices and to synthesize research findings, in order to develop systems for achieving optimal patient and family outcomes.
Clinical nurse specialist	<ul style="list-style-type: none"> • Expands the scientific basis of nursing practice through using or conducting research • Mentors and consults with nursing staff about using, participation in, or conducting research • Applies the research process in problem solving, clinical decision-making, and evaluation of research findings as these apply to clinical practice and care of aggregate populations • Assures ethical and legal practice in the conducting of research • Disseminates own research studies
Manager or director	<ul style="list-style-type: none"> • Assures research-based nursing by creating an environment that encourages the use of research in practice (for example, through budgeting, releasing staff time for project work or conference attendance) • Uses research in decision making to maintain high-quality, cost-effective patient care • Assures that the integration of research is congruent with the departmental, organization, regional, and system-wide goals of the five-year strategic plan

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In 1999, 110 staff nurses, managers, and clinical nurse specialists enrolled in this workshop; in 2000, an additional 40 staff nurses and five clinical nurse specialists enrolled. Thus far, 45% of participants rate themselves as competent to use research in practice at the workshop's start, and 99% rate themselves as competent to do so by its end. Recommendations from 45 workshop groups have been incorporated into the work of organizational committees, and policies and procedures have been changed.

CHALLENGING THE STATUS QUO

It's difficult to attribute specific patient outcome improvements solely to the new nursing research implementation strategies, as several factors affect outcomes. But the integration of research into practice has led to several tangible process improvements.

Policies, procedures, interventions, and guidelines.

During the past two years, Aurora-Metro nurses have been using research to challenge policies and patient care interventions and are implementing new research-based guidelines. One group of oncology nurses is challenging the frequency of iv tubing changes in immunocompromised patients. A group of neonatal nurses has implemented a pain management plan of care for newborns who undergo circumcision. One unit is pilot-testing the implementation of risk-factor management protocols for hospitalized elderly patients. A group of clinical

nurse specialists and nurse managers is reviewing ways of promoting sleep in patients on intensive care units. Emergency department nurse managers are reviewing strategies directed toward decreasing wait times for patients. All these changes will likely improve the quality of patient care and help nursing staff effect more cost-effective outcomes. We see this area expanding to include challenges to legislation as well.

All of this nursing research activity contributed toward Aurora-Metro being honored as the first health care system nationwide to achieve regional magnet status in January 2001.

Research skills education.

The Research Utilization Education Workshop will continue annually. In addition, Aurora-Metro nurses have joined University of Wisconsin faculty in designing a four-year undergraduate curriculum in which nursing research is a three-credit course. Students also attend Aurora-Metro's annual research day and participate in unit-based research projects.

Networks and information systems.

Informal regional networks of nurses meet monthly to improve practice guidelines for selected subgroups of oncology, cardiac, and women's health patients. Videoconferencing permits the sharing of research findings among nursing staff at Aurora-Metro's five hospitals.

Databases of patient outcomes continue to be developed. Aurora-Metro nurse leaders make sure that their clinical decisions about hospital systems design are research-based, when appropriate.

To improve their ability to compile essential information about Aurora-Metro nurses, nurse leaders constructed a nursing personnel minimum data set, which includes highest level of nursing education attained, certification, shared decision-making experience, and language translation skills. This database is linked to the human resources department's database and updated annually.

Plans are being made to re-survey a random sample of Aurora-Metro nurses, this time using the shorter Nurses Research Use KAP Survey. Because the items in this survey constitute a subset of the original survey's items, data gathered from the two will be comparable.

Communication.

Because the region is so large and because some nurses must fund their own attendance at conferences, we're unable to keep an accurate accounting of Aurora-Metro nurses' research presentations, but we do keep records of all Aurora-Metro health care staff publications. Over the past three years, the work of 46 Aurora-Metro nurses—covering clinical, administrative, and research topics—has been published.

Aurora-Metro nurses also report periodically to both lay and professional audiences on multidisciplinary research projects by serving as keynote speakers, participating on interview panels and, occasionally, by commenting in television, radio, and Internet reports.

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