ENK voices of evidence in nursing
EXCELLENCE IN NURSING KNOWLEDGE
February 2005
Sigma Theta Tau International Honor Society of Nursing

Clinical Scholars at the Bedside

The clinical scholar model is EBP mentoring for how nurses work today. It offers a useful set of tools to sustain an evidence-based practice culture using the principles of clinical scholarship, observation, critique and analysis, synthesis and evaluation, application, and dissemination.

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In the photo, from left to right, guest editor Alyce A. Schultz, Kelly Lancaster, Tania Strout, Paulette Gallant, Terri Mathew. (Terri, although not in this issue of ENK, was the recipient of one of the mentorship awards at the Leadership Conference, November 2004, in Indianapolis, Indiana, for her work as a Clinical Scholar mentor at the bedside.)

Advancing Evidence into Practice Creating an effective evidence-based practice makes several essential assumptions. One, that the evidence exists, and two, that nurses can identify, evaluate, and integrate the evidence. The first is what nurse scientists do. The second is left to the rest of nursing. But is the rest of nursing up to the challenge?
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Essays on how the clinical scholar model was developed, and put into practice, by its primary architect.

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FROM THE EDITOR

ENK EXCELLENCE IN NURSING KNOWLEDGE

This was our goal: Create a forum where nurses could encounter nursing's best ideas, tested by the challenge of real world nursing. You're looking at the result. Every month, a new issue of ENK will be shaped by a guest editor whose work deserves a larger audience. These are nurses working in settings where nursing knowledge is directly applied — where research and reality are engaged in a lively debate.

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Advancing Evidence into Practice

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Creating an effective evidence-based practice makes several essential assumptions. One, that the evidence exists, and two, that nurses can identify, evaluate, and integrate the evidence. The first is what nurse scientists do. The second is left to the rest of nursing. But is the rest of nursing up to the challenge?

Welcome to our sixth edition of ENK. Our mission is to bring nurses to the front row and show them an issue, a practice, or a model that is, to borrow a quip, ready for its close up.

In this edition, you're introduced to a guest editor and a group of nurses who are creating a model that builds a functional bridge from evidence to practice. It's called the clinical scholar model, and it is equal parts education, process, and mentoring. The model's originator and architect is Alyce Schultz. She and her contributors offer a virtual how-to for any hospital, school, unit, or individual nurse challenged by the complexities of investigating and implementing nursing evidence.

Alyce Schultz's clinical scholar model is appropriately named. It's not called the “scholarly clinician” model for a reason. It's about clinical practice first, and the obligation every clinical nurse shares to provide the very best care possible. That means opening your eyes to evidence, and setting your mind to putting it in practice. With this edition of ENK, you have a powerful head start.

Talk to us about what you're doing. ENK is yours, so make sure it's reflecting what matters to you.

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Clinical Scholars at the Bedside: An EBP Mentorship Model for Today

Through a series of workshops, approximately 50 direct care providers in our 600+ tertiary care facility learned the skills necessary to initiate and sustain an evidence-based practice (EBP) culture using the principles of clinical scholarship, observation, critique and analysis, synthesis and evaluation, application, and dissemination (Clinical Scholarship Task Force, 1999). Read about the workshops and how nurses took what they experienced there into practice.

The program for actualizing the clinical scholar model adapts and expands on recent work in the promotion of evidence-based nursing practice (Goode & Titler, 1996; Rosswurm & Larrabee, 1999; Rycroft-Malone et al., 2002; Stetler, 2003; Titler & Everett, 2001). Six workshops were planned, one every 2 months over a 12-month period (April 2003-2004). Ten nurses on the planning committee served as facilitators throughout the series. These nurses had been actively involved in previous research studies and had previous hands-on education in identifying researchable issues and critiquing research articles. Each participant in the workshop received paid time to attend the workshops and varying amounts of unit-based paid time to work on projects. The primary goals of the workshops were to promote a culture of EBP and clinical scholarship and to prepare staff nurses as resources and mentors, that is, clinical scholars, to other staff nurses in the evaluation of external and internal evidence for application to practice. The ultimate goals were to improve quality of care to patients and measure the impact of EBP on the quality of care.

Creating the Culture

An evidence-based practice environment requires both an infrastructure where change and innovation are supported and valued by management and staff and a critical mass or capacity of nurses who can critically appraise the internal and external evidence and synthesize these findings with patient preferences and the idiosyncrasies of the environment in providing care. This infrastructure and capacity must be embedded in a culture that supports the expansion and internalization of EBP, exemplified by interdisciplinary collaboration, evidence-based policies and procedures, and a systematic approach to the evaluation of care (Stetler, 2003).

As noted in the model, nurses interested in attending the workshops had to be "curious" and practice "reflective thinking." Participants were expected to be baccalaureate-prepared or to have completed a basic research course; the intent of the workshops was not to begin with basic research terminology. Nurses either were self-selected or were chosen by their immediate clinical supervisors to attend. Nurses on the Research

Council were expected to attend; nurses involved in the Practice, Quality, and Policy and Procedure councils and clinical nurse specialists were encouraged to attend. Not all nurses who began the series were enthusiastic about the opportunity to participate in the workshops!

The objectives of the workshops were:

1. Implement and promote an EBP model at Maine Medical Center (MMC).
2. Conduct a library search and select appropriate primary research articles.
3. Critique research studies and synthesize and integrate research findings.
4. Identify and access resources for EBP clinical guidelines.
5. Critically appraise EBP guidelines and systematic reviews.
6. Develop an EBP clinical guideline or protocol.
7. Implement and evaluate an EBP project.

Ninety percent of the nurses who started completed the series (45/50). Fourteen evidence-based quality improvement projects or research proposals emerged from the workshops. The value of the clinical scholar model can be measured, not only in the results of the practice innovations, but also in the renewed excitement for professional nursing as described in "Renewal of the Spirit."

"The most important practical lesson that can be given to nurses is to teach them what to observe - how to observe - what symptoms indicate improvement - what the reverse - which are of importance - which are of none - which are the evidence of neglect - and of what kind of neglect.… But if you can not get the habit of observation one way or other, you had better give up being a nurse, for it is not your calling, however kind and anxious you may be."
Florence Nightingale

Observers First
The power and practice of observation are embedded in the daily work of the professional nurse. Implicitly and explicitly nurses observe patients and families for their responses to treatment and for cues that the current plan of care may not be effective. The clinical scholar critically analyzes these cues, intuitively formulating patterns of responses and considering optional interventions for individualized care. When these patterns of responses do not indicate effective care, the clinical scholar questions "why?" Through observation, the clinical scholar questions current practice and identifies issues amenable to change.

Other astute observations may identify a patient care or nursing practice issue through risk management or quality improvement data, scorecard reports, staff practice concerns, or new knowledge shared by another staff member.

Participants in the workshops were challenged to conceptualize a clinical issue of significance to staff, patients, families, or the hospital. Project teams were formed based on common clinical themes or issues.

Using the Conceptualizing a Researchable Issue form, teams were asked to determine the significance of the clinical issue and identify key stakeholders who might be members of the project team, and those

stakeholders who might challenge and/or support the change in practice. Team members determined which stakeholders needed to be invited as team members and who needed to be kept informed. The desired outcomes were defined and assessed as to whether they represented independent or interdependent nursing practice. The feasibility of the practice change related to time, costs, risks, and benefits were acknowledged.

Within the first component of the clinical scholar model, variables of interest related to the clinical issue are determined. The variables may be interventions or outcomes. The online literature search is predicated on these pre-determined variables. In preparation for searching for the evidence, all attendees participated in an in-depth, interactive presentation by the library staff on computerized literature searches and a "scavenger hunt" of the library to familiarize themselves with all the library resources.

Analysis and critique of the evidence requires critical thinking about one's experiences as a nurse and the scientific basis underlying the phenomenon of interest. It is this scholarly, systematic inquiry that distinguishes the clinical scholar from the casual reader of research. One of the most common barriers or challenges expressed by staff nurses in applying research to practice is the inability to critique a published research article.

Setting the Table

Since many of the nurses attending the workshops had not had a research course for many years, had perhaps never had a course in critiquing research, and had not been active participants in any of the earlier efforts to promote research utilization or research studies, the first workshop was designed to stimulate thinking about potential clinical issues amenable to research or a change in practice.

To make the experience of critiquing a research article less ominous and less offensive than previous educational experiences with research, the initial teaching of critique likens a research article to a mystery: "If you can't stand the suspense, it is okay to read the end of the story once you understand the characters," or "I can't wait to learn what happened with these variables."

A common research study was critiqued, using the Schultz critique table, followed by the formation of four study groups based on practice environments. The critique study groups were assisted by staff nurse facilitators and two clinical nurse specialists from the EBP planning work group to critique articles from their clinical areas.

A set of guidelines for selecting relevant research articles was provided, and the teams were to complete a literature search and critique two articles prior to the next workshop. At least two team members were to critique each article and complete the Schultz critique table to determine the scientific merit, strength, and quality of the evidence, and applicability of the research findings to practice. The level and quality of evidence for that particular study is determined. The facilitators and I were available to help the teams as needed prior to the next workshop.

Groups planned to meet over the ensuing 2 months to complete their critiques of two assigned articles. Various meeting options were explored and attempted. By the next workshop, it was increasingly clear that

extended, designated, compensated time away from the direct care of patients was needed to optimize the work of the groups. While some groups were able to conduct meetings outside the work setting, the future work of the groups was scheduled to occur primarily during the workshop days.

Tools to Support Examination

Synthesis within the clinical scholar model is defined as the process of "thoughtful and deliberative" examination of the evidence. Within this phase of the model, the nurse methodically and systematically compares and contrasts the research findings presented in two or more relevant studies and synthesizes these findings into meaningful integrated tables.

Integrated tables (template/completed) are a systematic way to collate and evaluate current research and health information on a selected topic and on a single variable of interest. These variables of interest could be variations in the sample demographics, the interventions, or the outcomes. The outcome variables of interest may be different or measured in very different ways even in areas where there appears to be a significant body of work. Integrated tables are a synthesized portrayal of these measurement and results differences.

There are no pre-set criteria for what should be included in an integrated table. For example, if several dependent variables are measured in the same study, the citation may be included in more than one integrated table. The strength of the evidence may be enhanced after the completion of integrated tables as more than one quality study may have examined the phenomena.

Prior to applying research in practice, the findings from two or more studies are synthesized into integrated tables and the level of evidence is determined.

Although there is limited research in many areas of nursing practice, it is still recommended that the findings of at least two corroborative studies be used prior to implementing a new procedure or changing current practice. Integrated tables assist the clinical scholar in identifying gaps in the evidence by determining if there is enough quality evidence to recommend a guideline or protocol or to change a policy or procedure without increasing risk to patients. Lastly, the level and quality of the evidence from the critique table is added to the integrated table.

Once all the studies have been synthesized into the integrated table, the level of evidence for the variable of interest is determined. Future studies are recommended when there is a lack of quality or significant gaps in the evidence. The integrated tables determine the future direction for the change in practice.

Developing New Clinical Guidelines

Clinical guidelines are systematically developed statements to assist health care providers in making appropriate care decisions for specific clinical situations. They should be written using the best available evidence for the particular clinical issue and indicate if the recommendations are based on scientific findings or the consensus of experts. The intent of most guidelines is to influence clinician behavior; the guidelines are used in developing clinical pathways and in producing written policies and procedures.

Systematic reviews and meta-analyses are additional examples of external evidence, extremely useful in the advancement of evidence-based practice and nursing science. Systematic reviews are a thorough integrated synthesis of primary studies in a particular area. Their intent is to provide a thematic comparison of primary studies in a particular area where the variables may or may not have been measured in exactly the same manner. Meta-analyses are the synthesis of two or more primary studies that address the same hypothesis in the same way, using measurement scales that can be compared across studies. The intent of meta-analyses is to provide quantitative estimates of the overall treatment effects of an intervention that can be used in determining whether or not to apply that intervention.

The increasing availability of evidence-based guidelines, systematic reviews, and meta-analyses is a godsend for the busy nurse; however, all published guidelines and reviews should be critiqued for their credibility and tailored for the individual patient or patient population prior to implementation in practice. All published guidelines and reviews are subject to bias, imprecision, misinterpretation, and misconception of the evidence and, therefore, need to be critically and methodically evaluated for credibility, feasibility, comprehensiveness, and applicability (Brown, 1999).

While practicing nurses need to be skilled in critically appraising the internal and external evidence behind clinical practices, the time required to complete a comprehensive literature search and the critical appraisal of selected studies can be staggering. Clinical guidelines, if credible, provide a comprehensive base for updating policies and procedures and should be the first search option when initiating or updating a procedure, policy, or pathway.

Web Resources for Guideline Development

With the increased interest in evidence-based practice, many specialty nursing organizations (http://www.nursingsociety.org/career/nursing_orgs.html) as well as international groups like the Joanna Briggs Institute (http://www.nottingham.ac.uk/nursing/jbi/), the Cochrane Library (http://www.nicsl.com.au/cochrane/index.asp), Agency for Healthcare Research and Quality (http://www.ahrq.gov/), and the University of Iowa Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core (http://www.nursing.uiowa.edu/centers/gnirc/rtdcore.htm) are publishing clinical guidelines. Samples of published clinical guidelines were shared, and the emerging clinical scholars spent time locating published guidelines in their areas of clinical practice on the Internet.

Narrowing the Focus

After reviewing several options for evaluating clinical guidelines, the Appraisal of the Evidence from a Research-Based Practice Guideline (Brown, 1999) was selected for use. We added some additional items to the evaluation based on the collective work of the Agree Collaboration (http://www.agreecollaboration.org/) particularly for evaluating the strength of the evidence and the credibility and expertise of the authors of the guidelines. Within the EBP teams, gaps in published guidelines were identified, which led to the development of a critique table for published guidelines by one of the staff nurse clinical scholars.

As more systematic reviews and meta-analyses are published related to

nursing care issues, additional education is required in evaluating these publications and subsequent recommendations. Integrating all the research evidence with available internal evidence is necessary prior to making changes in practice. The integration along with an explicit determination of the strength or level of the evidence is necessary to make a clinically valid decision to change clinical practice.

The Move to Implement

Evaluation of the evidence applicable to practice is a rigorous process not unlike the research process; however, evidence-based practice clearly emphasizes the application of the findings into practice. Implementation of EBP changes requires a commitment by the clinical scholars to be trendsetters and acknowledgement that the path of the early innovator may be challenging. The clinical scholar as an EBP leader on the unit accepts the primary responsibility for educating staff regarding EBP and its role in improving patient care.

Prior to implementing the evidence into practice, all recommended changes should be piloted on a select population of patients or a subset of patient care units. If baseline data were not available within the system, concurrent or retrospective data were collected to provide comparison opportunities post-implementation. The EBP teams planned the education for their specific units, emphasizing the rationale for evidence-based practice and the evidence on which the practice change was predicated. Plans for outcome monitoring and evaluation were shared with staff.

House-wide implementation of an EBP change, particularly a change that is costly or may have potential risk, should not occur until the change has been tested on a single unit or small cluster of units. Piloting a practice change also allows for the collection of “naturalistic” data on the validity of the practice change or components of the protocol. Pilot testing also provides valuable, timesaving information on possible challenges to house-wide acceptance. Penetration of the EBP concept varies from unit to unit and team to team, but one consistent theme is the passion and commitment of the clinical scholars to see success.

"To be considered true clinical scholars, nurses must identify and describe their work, making it conscious, so that it can be shared with researchers, colleagues, other health care providers and, perhaps most important, the public."
Melanie Dreher (Clinical Scholarship Task Force, 1999, p. 28)

Innovators as Disseminators

The role of the clinical scholars, the innovators, is to disseminate their work with other practitioners, researchers, and the general public. Critiquing, synthesizing, integrating, and applying the evidence is extremely time-consuming and costly. The practice issues that nurses are experiencing are not unique to any geographic area of the country, and in many instances, the world. To truly cultivate an EBP culture, we must disseminate our successes and failures with our colleagues, both in presentation and in print.

The clinical scholars from Maine Medical Center have presented their work across the nation and internationally at the Sigma Theta Tau International Research Congresses, the biennial conventions, and at their respective clinical specialty conventions.

Reward and Recognition

The rewards and recognition by others created from the products of the clinical scholar model are evident. In the past decade, staff nurse research teams have been recognized with honors and research awards by Sigma Theta Tau International, the Association of Operating Room Nurses (AORN), Academy of Medical-Surgical Nursing, Eastern Nursing Research Society, National Association of Neonatal Nurses, Emergency Nurses Association Foundation (ENAF), and the National Association of School Nurses. More than 20 articles from the program have been published in peer-reviewed journals. Intervention studies were funded by AORN, ENAF, Emergency Medicine Foundation, and twice by Sigma Theta Tau International. In Toronto at the 37 th Sigma Theta Tau International Biennial Convention, a staff nurse team from the Cardiac Surgery Step-Down Unit was recognized for its efforts by receiving one of the Innovations in Clinical Excellence awards. A staff nurse from the general surgery unit was just recognized for her mentorship of others at the Sigma Theta Tau International Chapter Leader Academy in Indianapolis in November 2004.

Nursing Education as a Link

Linking senior nursing students and expert practicing nurses in the EBP initiative is one way of creating the clinical scholar student and promoting EBP with the bedside nurse. In the spring of 2004, Dr. Susan Sepples at the University of Southern Maine initiated an undergraduate assignment of revising or developing EBP policies and procedures in conjunction with the Policy and Procedure Council at MMC. The purpose of this strategy is to bridge education and practice through a pragmatic program that links senior nursing students with the best available evidence.

Student nurses bring “book knowledge” into the clinical setting; they are comfortable with the language of research and the exploration of standards and theory in the literature. The clinical nurse brings a working knowledge of processes and equipment, as well as procedural knowledge from clinical experience. This program is an attempt to utilize the student's theoretical and the practitioner's clinical knowledge to develop better policies and procedures. In the process both student knowledge and clinical practice knowledge are valued and considered in the design of evidence-based policies and practices. This program, in its first semester, has grown out of the needs of the hospital's Policy and Procedure Committee to incorporate evidence into policy and the faculty members' desire to increase the usefulness of student assignments.

Conclusion

The clinical scholar mentor model for evidence-based practice supports the principles of clinical scholarship, observation, critique and analysis, synthesis and evaluation, application, and dissemination (Clinical Scholarship Task Force, 1999). Evaluation of the model is both iterative and cumulative. Many of the EBP projects generated through the first series of workshops are still in progress and will be reported at regional, national, and international conferences as the work evolves and improved outcomes of patient care are measured. The process is not without challenges, but the rewards as reflected in renewing the professional spirit are compelling and often immeasurable.

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About the Author

Alyce Schultz, RN, PhD, FAAN, was the director of the Center for Nursing Research and Quality Outcomes at Maine Medical Center (MMC), in Portland, Maine, with an adjunct appointment at the University of Southern Maine, School of Nursing from 1993 to 2004. In November 2004, she accepted a clinical scientist position at the University of California Davis Medical Center. As the nurse researcher in a tertiary care setting, her primary role is that of mentor and educator of staff nurses in the utilization and conduct of research. Within this role, the clinical scholar model evolved as the evidence-based nursing practice program at Maine Medical Center expanded.

Since 1997, she has authored or co-authored more than 20 articles published in peer-reviewed journals. She and her colleagues at MMC have been honored with eight research awards from multiple nursing societies including the Innovation for Clinical Excellence award from Sigma Theta Tau International in 2003. Dr. Schultz and her collaborators have also been funded for research by five grants from nursing societies and the NIH and by three internal awards.

Dr. Schultz is an active member of numerous professional organizations including the American Nurses Association where she serves as an appraiser for the Magnet Recognition Program; the Honor Society of Nursing, Sigma Theta Tau International; and Eastern Nursing Research Society where she has held several offices and served on various committees. She currently serves on the Editorial Panel for the *Journal of Med-Surg Nursing, Research in Nursing and Health,* and *Journal of Emergency Nursing.* She is a board member for Sigma Theta Tau International, elected in 2003, after serving on the International Research Committee for 2 years. She was inducted as a fellow in the American Academy of Nursing in 2003 in recognition of her work in evidence-based practice with staff nurses.

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Origins and Aspirations: Conceiving the Clinical Scholar Model

"In dwelling upon the vital importance of sound observation, it must never be lost sight of what observation is for. It is not for the sake of piling up miscellaneous information or curious facts, but for the sake of saving life and increasing health and comfort."
Florence Nightingale

A clinical scholar is an agent of change. These nurses challenge institutionalized inertia with new evidence, and their history of transformation extends back as far as nursing itself. Every generation of nurses refreshes the story and continues the change. Read about how a mentorship-based model of clinical scholarship was developed alongside the contemporary concepts of evidence-based practice.

Promoting the utilization of research by nurses at the bedside is not a new expectation. Throughout the 1970s, three research utilization projects were funded. The Western Institute of Higher Education in Nursing (WICHEN) utilized the Delphi method to explore why nurses were not reading and using research. The Michigan Nurses Association funded a project to examine and critique the research base for nursing interventions, the Conduct and Utilization of Research in Nursing (CURN). Ten research-based protocols were developed and disseminated for use. In Washington, Dr. Kathryn Bernard began to investigate how to assess and identify children at risk for failure to thrive, abuse, and/or neglect through parent-child interactions. The methods developed by Bernard, known primarily as the Feeding and Teaching Scales, were taught via satellite to 600 nurses throughout the United State. The Nursing Child Assessment Satellite Training (NCAST), an early example of applying research to practice, continues to this day.

Almost 25 years ago, Dr. Janelle Krueger keynoted one of the first national nursing research conferences, "Promoting Nursing Research as a Staff Nursing Function." Her message emphasized that research-based nursing practice results in improved patient care. She argued that staff nurses could both "do" and "use" research and that these functions must be expectations of the staff nurse role because (1) staff nurses provide direct patient care and are the link between research and practice, (2) staff nurses have the opportunity to identify clinical problems amenable to research, and (3) the number of nurses with research preparation at the doctoral level will always be small. In 1980, I had just completed the RN-BSN program and this message clearly established my aspiration for the future. As I proceeded through my graduate degrees, I never lost sight of this goal. In 1993, as the first nurse researcher at Maine Medical Center, I

had many opportunities for achieving my professional goal.

The seeds of this mentorship model for evidence-based practice (EBP), later branded the clinical scholar model, began long before publication of the Sigma Theta Tau International Clinical Scholarship White Paper (Clinical Scholarship Task Force, 1999). Throughout the 1990s and into the new millennium, many staff nurses at Maine Medical Center (MMC) were actively involved in the Nursing Research Program through reading research and applying the findings in practice. When the research evidence was not available, nursing research studies were conducted. It was evident that nursing research was slowly infusing through MMC, but the number of nurses actively involved needed to increase if the culture or environment in which the nurses practiced was to support routine research utilization.

By the late 1990s, the concept of "research utilization" was incorporated into the definition of evidence-based practice. At MMC, we adapted the definition of evidence-based nursing as conceptualized by Stetler (2001). Dr. Stetler emphasized that evidence-based nursing uses research findings as the scientific basis for practice but that quality improvement data, other operational and evaluation data, consensus of recognized experts, and affirmed experiences should not be overlooked as credible evidence for questioning one's current practice. She further stated that while evidence-based practice is not based on ritualistic, traditional clinical experiences, the cognitive or enlightened use of evidence in practice changes the way that one thinks about a clinical situation. Evidence-based practice may be initially encouraged through the application of knowledge in a single intervention or project, but over time as more nurses are educated regarding the critique and application of evidence, the culture and delivery of care will slowly change to a professional, routine use of evidence, both formally as in changing policies and procedures, and informally through reflective, inquisitive thinking.

Clearly, only one model for promoting an evidence-based practice culture does not fit with the complexity of an acute care environment, and several potential models were explored. The opportunity for effecting broad environmental change in promoting EBP was epitomized by the clinical scholarship philosophy, and thus, the concept became the integrated model for our mentorship program for evidence-based nursing practice. Every nurse must become responsible and accountable for providing care based on the best available evidence; it is unethical not to do so.

The Clinical Scholar Mentors

Clinical scholarship promotes the spirit of inquiry and willingness to challenge and change the procedures and tasks we have always used in patient care and the theories that frame the practice. Practicing as a clinical scholar does not mean that the nurse is conducting research, but it does require that research be used to inform practice. “Clinical scholarship enhances our knowledge development ... by testing the realities of clinical phenomena” (Clinical Scholarship Task Force, 1999, p. 26). Clinical scholarship is an intellectual process, steeped in curiosity that challenges traditional nursing practice through observation, analysis, synthesis, application, and dissemination.

Clinical scholars are exemplars of the professional nurse. They are knowledge-oriented rather than rule-bound and use research as a process and a product to provide, teach, or manage patient care. Clinical scholars are described as nurses who exhibit a high level of curiosity and critical thinking, continuously search for new knowledge, reflect on their

experiences, seek and utilize a wide variety of resources, and use evidence to improve the effectiveness of interventions. The clinical scholar never stops asking "Why?" Recognizing that the maturity of nursing knowledge gained through experience is often closely associated with scholarly expertise, experience alone does not assure clinical scholarship. Neither is clinical scholarship synonymous with clinical proficiency. The clinical scholar is always questioning whether a procedure needs to be performed at all and, if so, is there a more efficient and effective way of providing the same care. The clinical scholar possesses the attributes of a leader: creativity, courage, compassion, strength, and vitality.

The clinical scholar model for evidence-based practice is inductive, de-centralized, and predicated on "building a community" of clinical scholars to serve as mentors in the critique, integration, implementation, and evaluation of internal (quality improvement and benchmarking data) and external (empirical studies) evidence and in the application and evaluation of evidence in practice (Stetler, 2003). The clinical scholar model supports the notion that for research to be used in practice, it must be understood and valued by the direct care providers.

Reflecting on Rogers' Diffusion of Innovations theoretical framework, clinical scholar mentors accept that they are the innovators, the early few that challenge the status quo. As the model was actualized in an acute care setting, it was recognized that an EBP culture demands more than a cadre of clinical scholars, but that building the individual capacity to change the system is one important component (Stetler, 2003). In this model, the individual capacity to change the system is directly dependent on possessing the characteristics of a clinical scholar. The clinical scholar mentorship program promotes excellence in clinical care and improvement of patient outcomes through the generation of new scientific knowledge and the translation, synthesis, and implementation of existing evidence into practice.

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Since 1997, she has authored or co-authored more than 20 articles published in peer-reviewed journals. She and her colleagues at MMC have

been honored with eight research awards from multiple nursing societies including the Innovation for Clinical Excellence award from Sigma Theta Tau International in 2003. Dr. Schultz and her collaborators have also been funded for research by five grants from nursing societies and the NIH and by three internal awards.

Dr. Schultz is an active member of numerous professional organizations including the American Nurses Association where she serves as an appraiser for the Magnet Recognition Program; the Honor Society of Nursing, Sigma Theta Tau International; and Eastern Nursing Research Society where she has held several offices and served on various committees. She currently serves on the Editorial Panel for the *Journal of Med-Surg Nursing, Research in Nursing and Health,* and *Journal of Emergency Nursing.* She is a board member for Sigma Theta Tau International, elected in 2003, after serving on the International Research Committee for 2 years. She was inducted as a fellow in the American Academy of Nursing in 2003 in recognition of her work in evidence-based practice with staff nurses.

ENK voices of evidence in nursing
EXCELLENCE IN NURSING KNOWLEDGE
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Observation: Conceptualizing a Researchable Clinical Issue

This is the clinical scholar model at work. Read about how nurses' natural skills of observation are brought into focus, transforming broad questions into a solid foundation of inquiry.

Nurses provide the majority of patient care within an acute or tertiary care institution. The purpose of that care is "the diagnosis and treatment of human responses to actual or potential health problems (ANA, 1980). Nurses in the clinical environment use their observational skills daily to discern the effectiveness of the nursing care they provide to actual and potential patient and family problems. The critical thinker reflects on that care to determine the appropriateness of current practices, and whether an alternate approach or method might be considered. For example, in a post-cardiac interventional nursing unit, patients may be confined to bed rest for 6 hours after a percutaneous cardiac interventional (PCI) procedure, such as a percutaneous transvenous coronary angioplasty (PTCA) or cardiac stent placement. Nurses may question the necessity for this protracted length of bed rest. The alternative approach to care might be decreasing bed rest from 6 hours following a PCI to some lesser number of hours and questioning if this approach can be adopted without increasing vascular complications.

Clinical issues amenable to changes in practice may also originate from family encounters, retrospective and concurrent data collection, the nursing or interdisciplinary care delivery system, or from new sources of knowledge. Patient and family questions may concern specific diagnoses, difficult symptom management, home care, or patient/family education. Data-driven issues may revolve around a desire for quality improvement concerning a specific topic or practice, such as preventing falls. Staff may identify a more efficient method for delivering nursing care as a result of questioning outcomes of a specific practice, from reading journal articles or attending a conference. Knowledge-driven triggers may invite implementation of a national guideline for the purpose of improving care.

The process of identifying and clarifying the clinical issue of interest is completed prior to a literature search. The purpose is to determine the significance and feasibility of addressing the issue and as preparation for the search of internal and external evidence. In this instance, nursing staff providing direct patient care asked the question "What is the duration of bed rest necessary, once hemostasis is achieved, to prevent vascular complications while promoting patient comfort following a coronary interventional procedure?" On our 24-bed post-cardiac interventional nursing unit, approximately 75% of the patient population every month undergo a cardiac intervention procedure requiring sustained bed rest

post-procedure. This equates to 185 patients.

If the duration of bed rest was reduced from 6 hours to 4 hours in this patient population, approximately 370 hours of nursing care could hypothetically be reduced. Patient discomfort from prolonged imposed bed rest is a major dissatisfier among the patient population. This is an important issue for patients, family members, nurses, and physicians. Decreasing the duration of bed rest without increasing complications can potentially decrease length of hospital stay and increase patient satisfaction.

Our team decided to use this clinical practice issue as our first evidence-based practice (EBP) project. We began by clarifying the intervention (independent variable) and the desired outcomes (dependent variables). We asked the following questions: 1) What is the optimal duration of bed rest to prevent potential vascular complications? 2) Would decreasing the bed rest duration conversely increase the potential for bleeding and hematoma development? 3) Would decreasing the bed rest duration promote increased comfort by reducing back and leg pain, improving urinary elimination, and increasing or maintaining gastric motility? These variables formed a basis for our literature search and for determining the feasibility of completing the project.

Feasibility is defined as the practicality or achievability of completion and is examined by determining the resources necessary to change a practice. First, we considered the support and cooperation required from nursing and physician staff. By decreasing bed rest duration, would the nursing staff also support the extra nursing observation time possibly required to detect and prevent an increase in vascular complications? What changes in documentation for post-procedural observation by nursing staff would be required to monitor vascular complications? Would the documentation changes require a new documentation form? If so, how much time would it take to devise, institute, and educate the staff concerning a new form? Would physicians support the decreased bed rest duration if there was any possibility of increasing vascular complications?

We also considered any potential costs related to the change in practice. Were there financial concerns in decreasing bed rest duration? What data need to be collected? Who will collect the data? Who will enter the data into a computer and assist us in analyzing the data?

Finally, we discussed the ethical considerations in decreasing bed rest duration. What was the trade-off of risk versus benefits to the patient by decreasing the duration of bed rest? Could a vascular complication, such as a pseudoaneurysm, prolong the patient's hospital stay, or require a further procedure to correct it?

To quantify the feasibility of completing the project, we completed the Probability of Adoption Assessment Guide (Horsley, Crane, Crabtree, & Wood, 1983). This form was originally developed for use in the Conduct and Utilization of Research in Nursing (CURN) project in the early 1980s as a measure of innovation infusion. Its intent and usefulness are still applicable today with EBP projects. Sixteen items assess the ease of implementation with additional items on cost-benefit factors. Each subscale can be examined separately for the probability of adoption. A combined score of 104-130 suggests that the probability of adoption is very good for a project. Our score was 122.

Optimistic that we had completed the necessary a priori assessments and discussion, we completed a literature search for the external evidence. A comprehensive Medline and CINAHL search utilizing global terms are recommended as the starting point. These computer databases are available in most medical/nursing libraries and are accessible online from our nursing unit computers. Based on our discussions, we searched for research articles addressing: 1) duration of bed rest following a percutaneous coronary interventional procedure once hemostasis was achieved, 2) patient comfort while confined to bed rest, 3) French catheter size used for initial femoral artery puncture, 4) methods used to achieve hemostasis in the femoral puncture site, and 5) vascular complications related to percutaneous coronary interventional procedures. The key words used in the search were: percutaneous coronary intervention, comfort during bed rest, femoral artery puncture, French catheter size, and vascular complications.

The librarians, experts at searching the literature, assisted us in combining key words. From our broad literature search, we selected only articles whose titles and journals suggested that they were research articles. Most articles had abstracts so we could focus our search even more definitively. The abstracts should provide insight into the study design, variable of interest, study subjects, methods, and results. If there is not an abstract, look for this information in the title. The title and/or the abstracts should give you a sense of whether the clinical issue is similar to yours and if the setting and study sample are similar. This cursory review of the literature search narrows the articles pertinent to your clinical issue.

Critically examining and thinking reflectively in a group and individually about the clinical issue provides one with a sound framework for continuing with a project. Clarifying and narrowing the clinical issue to a single problem is necessary and helpful in completing a search for the evidence. This process is helpful in identifying the pre-implementation data that need to be collected and provides some initial understanding of the potential success. Once articles have been selected for inclusion in your review, the critique process begins.

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About the Author

Cindy Honess, RN, is a cardiology clinical nurse specialist at Maine Medical Center in Portland, Maine, where she has practiced since 1999. She graduated from the University of Pittsburgh School of Nursing with an MSN and has since become certified as an advanced practice nurse through the ANCC. She has been actively involved with evidence-based practice projects at Maine Medical Center involving correct electrode placement and lead selection for cardiac monitoring, and reducing length of bed rest following a percutaneous cardiac intervention. Ms. Honess presented her work at the Fifth Annual Evidence-Based Practice Conference sponsored by the University of Rochester in 2004.

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Analysis: What's All the Speak About Critique?

You have identified a patient care or practice issue that you believe can be and should be improved upon or even abandoned. The literature reveals several articles that, according to the abstracts, are relevant. Now what? Read about how a staff nurse can use a primary component of the clinical scholar model to develop a useful critique.

The skills and knowledge necessary to critique a research article have long been identified as the common barrier to increasing the capacity for initiating and implementing evidence-based practice among staff nurses (Funk, Tornquist, & Champagne, 1995). The time commitment for critiquing a single article is rarely less than 2 hours and, depending on the complexity of the article and your skill in critique, may take several more hours and multiple readings.

Even the seasoned researcher finds new information or “enlightenments” in an article with each re-read. Within the clinical scholar model, engaging the curious mind through the analogy of reading a mystery story lessens the mystique surrounding research, that is, that reading, applying, and doing research are only for the highly educated, academic scholar. It is important to accept that your fellow staff nurses may not display your level of enthusiasm for the critique of research and that changing the culture will take time.

Relish the Mystery

Find a quiet place and read through the research article. Enjoy the mystery! Get to know the characters and look for the “good” in the study. The assumption is that you have scanned the abstract or article for its usefulness and applicability to your clinical issue. When you are finished reading the article, you should be able to draw a picture of what the study was designed to evaluate or explore. You are now ready to analyze or critique the article in depth.

The difference between reading and critiquing a research article is the time needed and the critical thinking and knowledge required to reflect on the research method, results, soundness of the discussion, as well as limitations or gaps in the study. Research articles are crammed full of information. There is no right or wrong way to critique an article, but it is necessary to evaluate all sections of the article. The approach that we use for critique is: 1) Look for what is useful in the article rather than just finding gaps or limitations (i.e., the negative approach), and 2) First read the parts of the article that you understand best. Remember, you are trying to obtain and evaluate the external or empirical evidence for a quality improvement or research project.

Let a Form Guide You

A critique form is recommended so that you gather similar information on each article in preparation for synthesis or integration of the variables and findings. We use a form developed by Dr. Alyce Schultz as it supports our "mystery" approach to understanding published research. Note on our critique form, we leave the most difficult parts of the article, a thorough understanding of the methods and findings section, until we completely understand the sample, the setting, the variables of interest, and the purpose of the study. Use a critique form that meets your needs and skills; however, the same form should be used for all the articles critiqued for a single project. On any form, you can always copy and paste tables in the results section if the findings are extensive and complex. Once an article is critiqued, it can be used repeatedly for other purposes.

The Critique Begins

Completing the Schultz critique form requires the same analytical thinking as other approaches to critique; the difference lies in the non-linear approach to examining the article. The in-depth critique occurs after you have thoroughly read the article and are clear about the purpose of the study and variables of interest. The first six columns of the form are completed with just basic understanding of research methods. The last three columns may require consultation from a nurse researcher or person with more experience in research methods.

The example is a critique of a study completed in our institution on the incidence of pressure ulcers in patients who had undergone an operation. The study was predicated on quality improvement information and a literature review that suggested patients who had longer operations were particularly vulnerable for skin breakdown, a hypothesis not supported by the study findings.

In the first column, labeled **Study Citation,** it is important to include all information that could be needed regardless of the journal or proposal format (i.e., authors' names, title of the article, name of the journal or source of the article, date, edition number, volume number, pages, country/place/institution where study took place, and source of funding). This information is very important in evaluating applicability to your population and setting and to examining any potential conflict of interest.

In the second column, copy the **Purpose** of the study as stated in the article. This can usually be found after the literature review, sometimes under the subheading of purpose; occasionally it is found in the abstract. It is usually written in a clear, concise manner describing the problem and/or interventions; however, sometimes, in the conservation of journal space, the purpose of the study may be stated as the objectives or goals of the study, or even in the form of the study hypotheses or research questions. If the research questions or hypotheses are specifically stated separately, they should also be written in this column. Stetler (1994) suggests that the variables that need definition be underlined at this stage of the critique, and this approach may be helpful to you.

Within the third column, the **Design** and **Variables of Interest** are determined and defined. Is the study design descriptive, correlational, quasi-experimental, a randomized controlled trial, or an epidemiological study? The design is usually written in the abstract or in the methods section of the article. If the study is descriptive or correlational, it may be more difficult to actually identify the variables than it is in an experimental study where the variables are clearly differentiated and defined. This is a

good column for writing the definition of a variable for cross-comparison with other studies.

The evaluation or information on the **Setting/Subjects or Sample** is recorded in the fourth column. Here you want to know *where* the study/ research took place and any unique characteristics of the study setting (e. g., 100-bed community hospital or 24-bed intensive care unit in a 1,000-bed teaching hospital). This information allows you to compare the setting of the research study with your setting. You also want to know *who* were the subjects and the sample size. As part of the evaluation and for comparison later, include any information on the *selection criteria* for the subjects in the study—who was included, who was excluded, and how the subjects are like or unlike the patients in your setting. The article should state how the sample size was determined (i.e., a power analysis for experimental studies, and rationale for sample size or representativeness for non-experimental samples). This is necessary for you in later determining the validity of the statistical tests (e.g., was the sample size adequate to actually find statistically significant differences if the intervention was effective?).

The *demographics* of the subjects included in the sample are noted in this column. It may be something as simple as number of men and women in the sample, but it can also be a bit more complicated, by recording age, diagnosis, gender differences, or any variables where there are differences in the control group versus the experimental group. The purpose of randomization is to decrease the potential effect of extraneous variables in the subjects, that is, increase homogeneity of the sample; therefore if the demographics for the whole sample are documented and there are no differences in the randomized groups, this should be stated. You also need to know how many subjects in the sample size did not finish the study. This is called **attrition.** One limitation in many studies is that the final sample size does not match the sample size required for statistical significance.

The fifth column, labeled **Results/Findings,** is for briefly describing the answers to the research questions or hypotheses. This is not the column for analyzing and reporting the statistical findings but rather summarizing what the authors concluded in the discussion section of the article. Do the results or findings make sense to you? Do you think that the intervention as implemented had a direct effect on the outcomes as reported, or can you think of other alternative reasons for the results? Maybe, from your clinical experience, you visualize other peculiarities about the patients or the clinical situation that may have created or contributed to the outcome, independent of or in combination with the study intervention. If you do not think the research questions were answered, write that down.

The sixth column is labeled **Implications for Practice/Limitations.** As a mentor to other staff nurses, you may find this to be the most important column in the critique. This is the time to put on your “reflective thinking hat.” You have now read the entire article and determined whether or not the research questions were answered. Now you are evaluating the conclusions drawn by the researchers. As you reflect on the results of the research, consider the benefits of the outcomes for the subjects/patients, the cost of changing practice in relation to the benefits/outcomes, and the clinical significance of the findings. The article may or may not explicitly state the limitations. This may be your perception. It is very possible that you included some of the limitations in the Results column. If you have already written about the limitations under alternative explanations, then say “see results column.” You do not have to rewrite what was already stated in another column.

The next two columns in the critique table require a basic understanding of research statistics and research terminology. List any activities or procedures used for the intervention within the **Methods** column. Also use this column for collecting outcome data. In reading the study you should be able to determine exactly what the researchers did; briefly describe their process in this column. How did they measure the variables? How did they apply the intervention? How did they collect data? The intervention with its "dose" and frequency should be described.

The measures used for the dependent or outcome variable should also be described. The researchers may have used a previously tested scale or some other method of measuring the outcome, for example, in this study, a pressure gauge was used in the first 150 subjects, and the Braden Scale and a visual assessment of pressure points was completed every other day on all study subjects. There should be some description of how data collectors were educated or trained to collect the outcome measures and whether or not inter-rater reliability was established. If multiple researchers applied the intervention, the methods for teaching and evaluating their services should be described.

The **Data Analysis** column is usually the most difficult for the practicing nurse. It is designed to help the reader think about the level of data that were collected, for example, dichotomous or nominal data, category or ordinal data, or continuous or interval data. The level of data supports the statistic that should be used in the study. If there are large or multiple tables of data in the article, it is advisable to just copy and paste the table on the back of the critique form rather than copy all the information. The most important "take-away" from this column for the direct care provider is understanding whether or not a finding was statistically significant; usually that equates to a p value of < 0.05. And if a statistical finding was not statistically significant, determine if there is an alternative explanation for the non-significance. In many studies, the power analysis conducted to determine sample size is utilized only in obtaining the required number of subjects or participants in a study. The power analysis is done for that reason, but it is done primarily to have enough subjects to achieve statistical significance if it exists in the data. Attrition often reduces the sample size to below that needed for the statistical analysis. This recognition is extremely important in analyzing the results. The second important "take-away" is to evaluate the clinical significance. A finding may be statistically significant, but the difference in the numbers may not be clinically significant. Is it clinically significant if oxygen saturation levels fall from 90% to 89%, even if the difference is statistically significant because it was based on a large sample size? The reader must ask these important questions.

The last column is your evaluation grade or **Decision for Use.** Can the results of this study be implemented in practice if there is a corroborating study of equal quality? Or can the information provided by the study only be used as background information because the study sample is too different from the group of patients where you would apply the intervention? These are questions to be answered by the nurse completing the critique who is also a clinical expert. The level of the evidence as supported in the evidence table that you are using should be indicated. The final determination of the overall level of evidence is made following synthesis and integration of all the evidence.

Do Not Give Up!

Completing a critique table takes a lot of time, but the effort will be worth

it when you write your research proposal and subsequent abstract and article. Mold the critique form for your use. Make it meaningful to you! Jot down questions about the information or questions you might want to address in your study. Remember there is no wrong way to complete a critique. Share the information with your colleagues. Seek out their opinions. All articles should be critiqued by a minimum of two readers. This leads to other questions and possibly another avenue of research. Always keep your critiqued articles in a notebook for future reference. You have invested a lot of time and thought into this step in the process. Lastly —keep a sense of humor. If you get frustrated, leave the article and come back later. It will be there when you return with a fresh mind and new ideas!

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About the Author

Paulette Gallant, RNC, BSN, practices at Maine Medical Center on a 36-bed cardiothoracic unit. At Maine Medical Center, she has practiced for 10 years on a surgical unit and 26 years on a cardiac surgery step-down unit. Ms. Gallant received a diploma in nursing from Mercy Hospital in 1968, a BSN from the University of Southern Maine in 2000, and is currently enrolled in the MSN program at the University of Southern Maine. She is certified by the American Nursing Credentialing Center in medical-surgical nursing. Ms. Gallant has been active for more than 10 years in the evidence-based practice program at Maine Medical Center. She has been the project director for multiple quality improvement projects that have resulted in nursing intervention clinical trials. She was the recipient of one of the prestigious Innovation in Clinical Excellence awards from Sigma Theta Tau International in Toronto, Canada, in 2003. Ms. Gallant has also presented her research at numerous local, regional, national, and international conferences and presented as a member of the Clinical Scholar symposiums in St. Thomas and Toronto, both in 2003, and in Dublin in 2004.

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Synthesis and Evaluation: The Clinical Scholar Model in Practice

Making care decisions guided by evidence often challenges nurses to make decisions on the evidence itself. In this instructive essay, a staff nurse brings you, step by step, through the processes.

Integrated tables within the clinical scholar model characterize the synthesis phase. Integrated tables show the results of the critical analysis of the external evidence and are representative of contrasting and comparative methodologies, samples, interventions, and/or outcomes or results. The thoughtful analysis of two or more articles may result in one or more integrated tables and the citation of a particular article in more than one of the tables. The integrated table may also include findings or critique of a published guideline or systematic review. An integrated table provides the essential and supportive data for evaluating the strength of the evidence for an intervention or outcome.

As an evidence-based practice team, we decided on the clinical practice problem, conceptualized the issue, completed our literature search, and critiqued the articles. We chose “reducing bed rest after femoral artery sheath removal post-percutaneous cardiac interventional (PCI) procedure, such as percutaneous transvenous coronary angioplasty (PTCA) or cardiac stent placement.” Our goals were to promote patient comfort, decrease use of pain medication, and possibly decrease length of hospital stay. Conceptualization of this practice issue is delineated in this issue of ENK.

The literature search revealed 30 articles related to our topic. Following a brief review of the abstracts, only five studies appeared to examine our proposed change in practice. We did not locate any published guidelines or systematic reviews on our practice issue. Critique of each article by the team supported an acceptable quality in the studies, and we then spent additional time carefully examining each independent (intervention) and dependent variable (outcome) in the studies. The independent variable of interest was the varying duration of bed rest (i.e., 2, 4, or 6 hours) post-femoral artery sheath removal. The dependent variables of interest were vascular complications and increased comfort or satisfaction with care. None of the studies showed a significant increase in vascular complications with the shorter periods of bed rest. These results supported our proposed change in practice, but each study used a slightly different protocol during and following the procedures.

We determined that these differing protocols could hypothetically have a direct effect on potential vascular complications. Some of the protocols also differed from the protocols used in our facility.

Now that we had evaluated the quality of the studies, our next question was “Can the data be applied to our practice?” From our critiques and based on the practice experience of our group members, we selected three protocol variables in addition to duration of bed rest that might play a major factor in post-procedure complications (i.e., sheath size, sheath dwell time, and the amount of anticoagulation therapy used during the procedure). To critically evaluate the outcomes and the strength of the evidence, we developed a separate integrated table for each of these intervening variables of interest and the major intervention variable, duration of bed rest post-procedure.

There are no pre-set criteria for what should be included in an integrated table. The columns will vary depending on your variables of interest and your proposed changes in practice. The citation and the funding source should be in each table. For our group, it was helpful to have eight columns (see example). Since three research designs were used in the studies, we included one column for design and sample, another for the variation in the independent variable, one for the primary outcome variable (i.e., vascular complications and the definition used in each study for the outcome variable), the results or reported findings, the limitations or gaps in the study, the generalizability or applicability to our patient population, and the strength of the evidence as determined by the integration.

The following is an example of our first integrated table. The variable we evaluated in this table was duration of bed rest. Additional tables evaluated the impact of the other intervening variables (i.e., sheath size, use of anticoagulants, and sheath dwell time) on vascular complications. The first four columns are related to specific information about the studies themselves. The information in the individual critiques and in the integrated tables should allow you to describe and compare the studies without returning to the original articles for information. The first four columns in this example are similar to those in the individual critique, that is, the citation, sample and research design, independent variable or variable of interest, and the dependent variables or outcomes, but note in this example that the intervention is always “bed rest” but of varying duration.

The fifth column includes the significant results for comparison across the studies. At this point in your review, you have determined which of the outcome variables are the most important for comparison. It may be the time when you can streamline the report of the results as the complete findings for each significant outcome variable are included in your individual critique. Comparing the interventions and the outcomes across the individual studies in a single table allows you to determine how much effect each level of intervention has on the outcome and how the outcomes and interventions may differ in your practice.

Identification of limitations and gaps provides you with the information you need to determine if the study sample and setting are similar to your practice and if the intervention is feasible in your setting. It is also at this point that you and your team should evaluate if your internal evidence is similar to the results of the studies. If for example, in our setting, our known vascular complication rate had been quite different from those reported by others, we would have needed to first examine other aspects of our practice before we recommended a change in the bed rest intervention. Since our rates were very similar to the reported rates, we determined that a shortened duration of bed rest would not put our patients at an elevated risk for complications.

The second purpose of identifying limitations and risks is to evaluate the quality of the study. If the limitations are too critical, we may not want to use the results in recommending a change in practice. Third, the gaps and limitations identified in the studies may guide your team to conduct further research prior to recommending a practice change. Even with statistically significant results, poor methodology in the study may suggest that the intervention as stated was not the variable that created the change in outcome.

Generalizability is defined as whether or not the results of the study can be applied to a patient sample or population other than the population used in the study. The criticism of many randomized controlled studies is that in controlling the inclusion criteria for subjects in the study, the patients in the study sample are not characteristic of the "real" patient requiring the care. In this case, our team decided that the population as described in the first two studies was very similar to ours, and the quality of the studies allowed us to generalize these findings to our patient population. We determined that the information in the last two cited studies was not applicable or feasible in our setting. Since our current duration of bed rest was 6 hours, we were not prepared to recommend only 2 hours of bed rest post-angiography.

We determined the level of evidence utilizing the most recent recommendations from the Agency for Healthcare Research and Quality (AHRQ Web site). Level of Evidence A is based on meta-analyses; Level of Evidence B is based on evidence from randomized controlled trials; Level of Evidence C is based on evidence from a quasi-experimental study; and Level of Evidence D is evidence from non-experimental studies and other sources. Level of evidence is not to be confused with standards of recommendation based on the accumulated review of the strength of the evidence as reported in national published guidelines from the government. As we are just beginning to learn about levels of evidence and evaluating the quality and strength of the evidence, we are currently recording the level of evidence based on the study design. As we become more sophisticated in our evaluation of the strength of the evidence, we will begin to report accumulated strength of the evidence in our tables. At this point, we would report the strength of the evidence that is applicable in our setting as a B. There is currently a task force within our Nursing Research Department that is reviewing the different taxonomies for comparing the levels and strength of the evidence. The final product from this task force will be a template and recommendations for our use within the Department of Nursing.

In conclusion, preparing the integrated tables adds another step in the critique of the literature base for recommending a change in practice or a new intervention. These tables provide the reader and the researcher a quick look at the accumulated results of multiple studies in a specific area, and even more useful, for a specific intervention or outcome. Integrated tables require the critical and reflective thinking of the clinical scholar in determining whether or not the internal evidence corroborates with the external evidence in supporting recommended, safe changes in practice.

Changing practice at a large facility is very challenging. After completing the integrated tables, we created a proposal to present to the cardiologists at our facility. Using the clinical scholar model we had confidence in the fact that the evidence we would present was valid, critiqued, synthesized, and applicable to our patient population, supporting the proposed change. The proposal was well received by the physicians, and the change was

strongly supported. Since the presentation, we have continued the project. This includes creating a data collection tool and early ambulation pathway. Using the exclusion criteria in the previous studies, we identified patients who would not be placed on the pathway. A pilot program for the change in practice will begin in January 2005. Data will be collected over a 3-month period and then evaluated against our baseline data to assess for any increase in the vascular complication rate. We will also evaluate patient satisfaction reports from our routine patient satisfaction surveys. If the complication rate remains unchanged and patients are satisfied, the practice will become standard throughout the facility.

About the Author

Gertrude Kent, RN, BSN, is a level II registered nurse at Maine Medical Center, Portland, Maine, on the Interventional Cardiology Unit. She graduated magna cum laude from the University of Southern Maine in 1990. As a member of the Staff Education Committee, Ms. Kent has participated in the planning and development of the annual competencies and planning and presenting for the annual Cardiology Skills Fair. Presently she is involved in the Evidence-Based Practice Work Team on her unit. The project is to reduce bed rest following femoral artery access after a cardiac intervention. The project is in the implementation phase. Early work on the integrated review for this project was presented by Ms. Kent in the clinical scholar symposium at the Sigma Theta Tau International Research Congress in Dublin in July 2004.

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Critiquing Clinical Guidelines

Clinical guidelines aren't biblical laws; they can be challenged and changed to improve care. With the clinical scholar model as a guide, this staff nurse begins the work of changing an entrenched guideline.

Clinical practice guidelines are recommendations for practice and can be utilized to create individual plans of care and clinical pathways. Evidence-based guidelines should be based on the best available evidence. Evidence is available in many forms. Internal evidence is obtained from affirmed experiences, retrospective chart data, quality improvement data, risk management data, and patient and nurse satisfaction surveys (Stetler, 2003). External evidence is obtained from a review of the literature, a critique of the current research, integration of the findings, systematic reviews, and meta-analyses. When clinical policies and procedures need to be established for new practices or updated and revised for existing practices, health care providers should be looking to the evidence for this information. Before making the decision to incorporate part or all of a clinical guideline into a policy or procedure, an appraisal process to determine credibility and applicability must occur (Brown, 1999).

Clinical Issue: Inadvertent Perioperative Hypothermia

Inadvertent perioperative hypothermia continues to be a practice problem despite the knowledge and equipment availability. Temperature management is a multidisciplinary responsibility in the perioperative setting, and inadequate management can result in adverse consequences and undesired patient outcomes.

Search for the Evidence

A computerized literature search using Medline and CINAHL was conducted for articles related to the prevention, treatment, and adverse outcomes associated with perioperative hypothermia. A comprehensive search for evidence resulted in the discovery of a guideline published by the American Society of PeriAnesthesia Nurses (ASPAN; 2001) on the Prevention of Unplanned Perioperative Hypothermia (Jeran, 2001). This guideline has now been published by the National Clearinghouse (www.guideline.gov/summary/summary.aspx?view_id=1&doc_id=5527).

Critique and Appraisal

Clinical practice guidelines generally address a specific situation for a specific patient population with the goal of improving outcomes. Like the critique process of individual research articles, two or more nurses or members of other disciplines who are familiar with the practice content should complete critique of clinical guidelines. Knowledge of the practice area is particularly important as decisions are made regarding application

of guideline recommendations into practice. Forming an interdisciplinary team is an important first step when considering the establishment of a new practice or updating an existing practice. Shared responsibilities and joint decision-making may reduce the challenges to implementation of any practice changes that may result after the appraisal process has been completed.

Synopsis

Prior to the in-depth critique of a guideline, an overall synopsis of its basic intent and development process should be completed. The scope or population of interest and the purpose of the guideline should be clearly delineated. In the introduction to the guideline, the methodology used to review the evidence and make decisions regarding the recommendations should be defined. The synopsis review is similar to appraising an abstract prior to a decision on doing a full critique of the article. If the guideline was developed with a very different population than the patient population that you are interested in treating, the guideline may not be worth the time it will take to complete a full critique. It is also important to note the year of the publication and the year that the guideline was developed. If the guideline was developed 3 or more years prior to the review, one should extend the literature search to more recent single study publications on the variables of interest, either the outcome variables or the interventions.

The population of interest in this guideline was defined as the adult surgical patient in the perioperative setting. The authors acknowledged that even though other patient populations such as pediatric and critical care/trauma have hypothermia issues, this guideline was only specific to the perioperative adult population. The intent was specified, and goals for improving patient outcomes by maintaining normothermia were defined. There was no discussion or explanation on the decision-making process for including research evidence or recommended actions. The guideline was developed in 2000-2001 and published in 2001.

Credibility

The credibility of the guideline refers to the trustworthiness or integrity of the guideline. Was it developed by experts in the field? Is the strength of the evidence presented clearly, using a previously published level of evidence format or was a new level of evidence schema developed by the authors for specific use with this guideline?

The credibility critique should begin with the evaluation of the authors. It is necessary to know the qualifications of the person(s) or group that made the decisions concerning the content of the guideline and the decision-making process used to recommend actions. In most instances the authors of the guideline should include experts in the area of practice as well as experts in appraising research literature. A group that is multidisciplinary and multispecialty with expertise in the specific area of practice would be considered credible for authoring the guideline.

The “Unplanned Hypothermia” guideline was developed by a ten-member, multidiscipline, multispecialty panel that utilized other experts in the field of perioperative hypothermia for a peer review of the guideline prior to pilot testing. Source of funding was identified as ASPAN. No conflicts of interest were disclosed. This guideline has also been endorsed by several professional organizations including ASPAN, American Society of Anesthesiologists (ASA), American Association of Nurse Anesthetists (AANA), and Association of periOperative Registered Nurses (AORN), further establishing its credibility.

Another important factor in appraising the credibility of the guideline is to determine the currency, inclusively, and strength of the evidence for the recommended practices. Credible guidelines are developed as a result of an integrative or systematic review, a meta-analysis, and/or a comprehensive search of the research evidence. Interventions should be comprehensive, and the strength of the scientific evidence for each intervention should be provided. Rating the strength of evidence for each intervention using scales such as those developed by Agency for Health Care Policy and Research (AHCPR), Agency for Healthcare Research and Quality (AHRQ), or Stetler et al. (1998) reflects the quality of the studies used to make the recommendations.

In this clinical guideline, the recommended interventions are individually referenced. The reference list is extensive and current. Most articles were published within the previous 10 years of the guideline publication and included randomized controlled trials and meta-analyses. Specific research was reviewed and clinical studies were cited that linked the occurrence of adverse outcomes to perioperative hypothermia. The strength of evidence ratings was not reported.

Applicability

In addition to establishing the credibility of the clinical guideline, the applicability must also be determined. The recommended interventions need to be acceptable and feasible to the patients and staff in the clinical setting where they will be implemented. Changes in efficiency, often defined as time, money, and effectiveness, must be considered when implementing the practice changes specified by the clinical guideline. Interventions that require more time may not always be feasible or acceptable to staff and patients unless there are demonstrated benefits in the form of improved outcomes. The need for more resources must be determined and the financial implications of making the recommended changes considered. Is it necessary to implement the guideline in its entirety or can the interventions be partially implemented and still be based on the scientific evidence?

The recommendations provided in the “Clinical Guideline for the Prevention of Unplanned Perioperative Hypothermia” are acceptable and feasible for most patients and staff in most perioperative units. Perioperative hypothermia management is a current practice issue, and many of the recommended actions in the guideline such as routine thermal care have already been implemented as part of the standard care in many perioperative units.

The reviewers must then consider the intensity of practice changes that would need to be implemented to apply the guideline. Will the intervention add to the workload of the staff nurse? There may be many staff members who have not previously been involved with temperature management, and implementation of this practice guideline may result in concentrated changes in practice for them. Interventions requiring the greatest change in practice would include more frequent temperature monitoring and the application of forced-air warming devices in the preoperative, intraoperative, and post-anesthesia care units. This procedure involves placing a warming blanket connected to a portable warming device on patients at risk for experiencing perioperative hypothermia. After receiving education on the management of perioperative hypothermia and equipment operation instructions, these practices should be acceptable to staff as they are easy and require very little time to perform.

The costs of using the portable warming device and the staff nurse time are minimal compared to the cost of treating patients who experience adverse outcomes such as prolonged anesthesia emergence, impaired wound healing, adverse cardiac events, increased intraoperative bleeding, and coagulopathies.

The effectiveness of the intervention can be measured through improved patient satisfaction, reduced lengths of stay, and decreased adverse outcomes. Thermal comfort is frequently seen as an issue on patient satisfaction surveys and would in many instances be successfully resolved by implementing the recommended interventions. The implementation of this guideline would improve health care by reducing length of stays, adverse outcomes, and increased morbidities and mortalities that have been described in the literature as being attributed to the occurrence of perioperative hypothermia.

Adoption, Implementation, and Monitoring

A credible critique and appraisal of the published guideline should result in a decision to adopt all or part of the guideline. Writing the revised or new procedure, policy, or pathway that incorporates the recommendations from the guideline should involve all health care disciplines that will be affected by the practice changes. It would be ideal if all the stakeholders were also involved in the review of the guideline.

Prior to attempting implementation of a new practice, potential barriers to change need to be assessed. Utilizing a tool like the Conduct and Utilization of Research in Nursing (CURN) Feasibility Scale to assess the probability of adoption can add structure to the process and identify these barriers (Horsley, Crane, Crabtree, & Wood, 1983). Once feasibility has been determined, implementation of the guideline will require staff education on the new care practice. Outcome measurement tools must be developed and quality monitoring data collection implemented with a comparison of pre- and post-implementation data to provide information on clinical outcomes and the effectiveness of the guideline.

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Creating the Clinical Scholar Student

"Sometimes learning requires courage. It can be difficult for experts, especially, to admit candidly that they could be better at what they do only if they knew more. To become a learner is to become vulnerable."
Donald Berwick, 1991

Linda Aiken and colleagues (2003) identified a link between higher nursing education and better patient outcomes. She found that surgical patients have a "substantial survival advantage" if treated in a hospital with a higher proportion of staff holding a baccalaureate or higher degree. The study, published in the *Journal of the American Medical Association,* quantified the difference stating that a 10% increase in the proportion of nurses holding BS degree decreased the risk of patient death and failure to rescue by 5%. Other researchers have identified significant advantages to a better educated nursing workforce including: less medication errors and fewer procedural errors (Fagin, 2001); and less practice errors (Delgado, 2002). In a study in the *Journal of Nursing Administration* (Barter & McFarland, 2001), 72% of chief nursing officers cited differences in practice between BS and AS/diploma nurses, including: stronger critical thinking and leadership skills. Working in an institution with a higher percentage of bachelor's prepared nurses seems to increase retention of all nurses, Magnet hospitals (defined according to their ability to retain staff) typically employ a significantly higher percentage of BSN (59% compared to 34%).

Among the competencies that BS prepared students bring to the workplace is the ability to incorporate evidence into bedside practice. In a study of RN-BS graduates from 1995-1998, Phillips et al. (2002), found students demonstrated higher competencies in: nursing practice, communication, leadership, professional integration, and research/ evaluation.

Despite an understanding that advanced education results in measurable nurse and patient outcomes, there is little reward for nurses who continue either formal or informal education. While lifelong learning in nursing is a value espoused by both educators and administrators, there is little translation of this into action. A nurse educator and colleague recently noted that while we ask nurses to engage in lifelong learning, when nurses return to school we credit little of what was not learned in established curricula (personal communication, Phyllis Healy, October 2004). Further, the practice environment has failed to clearly differentiate practice on the basis of educational preparation. It is not surprising therefore that the Department of Health and Human Service (1996) estimates that only 17% of associate prepared nurses advance their education.

Benner, Tanner, and Chesla (1996) identified five attributes of expertise: 1) a sense of moral obligation, 2) pattern recognition, 3) emotional involvement, 4) thinking guided by intuition, and 5) narrative understanding that is used to develop a sense of the whole person. Expertise is not linked always or even often in the hospital environment with education. In fact, nurses who choose to continue their education often leave the bedside role entirely. A number of barriers exist in the acute care nursing milieu to linking education with expert practice. Barraged by overwhelming clinical and teaching responsibilities, the nurse expert often has little time for reflective practice. In addition, the expert nurse is often collaborating, at least in the teaching hospital environment, with inexpert house staff where he/she is asked to repeatedly teach at a level that does not focus on intuitive, narrative knowing. This can lead to frustration. Likewise, continuing education for the bedside practitioner tends to focus on maintaining basic level competencies, and little effort goes into creating learning experiences that are leveled in terms of expertise. The clinical nurse specialist, once a provider of educational support for the expert, is increasingly engaged in a blended role that encompasses education of new staff but rarely includes collaborative learning with peers. The new collaboration of education and practice on the role of clinical nurse leader is aimed specifically at these concerns.

Reflective Practice as a Theoretical Model

Linking students with experts can provide more than a uni-directional transference of knowledge. Teaching can deepen the expert's intuitive thinking processes. Reflective practice as described in the theoretical work of Patricia Hentz and Sarah Lautterbach (in press) is useful in understanding the benefits to expert nurses of engaging in teaching. The role of teacher in reflective practice changes from one of knowledge (fact) conveyer to one of coach, partner, colleague, guide (and learner). Shared reliance in the teacher-student relationship can occur when students work closely with expert nurse clinicians in initiatives in which both the expert and the student have something to teach and something to learn. In developing evidence-based practice, the expert nurse brings clinical knowledge, while the student is often more facile with the practice of research review and analysis. The student may be better aware of the newest textual understandings while the clinician has the experience and the cultural realism to understand how practice can be changed in her/his environment to reflect evidence. In this way both student and clinician are engaged as teachers and learners. The reflective process includes: Reflection-Awareness-Action-Reflection-Awareness-Action (Hentz & Lautterbach, in press). Action involves both teaching and learning. The expert nurse as teacher is involved (in reflective practice) as coach, partner, and guide. The teacher models the reflective process mentoring the student in “the habit of reflection.” Ideally, the expert nurse should be coached by an expert teacher (one who may not have deep knowledge of the clinical issues but understands the process). This might be the clinical faculty member or a clinical nurse specialist.

Developing an Initiative Linking Practice and Education

In consideration of the roles of expertise and the need to create a work environment that embraces differentiated practice and supports evidence-based practice, an initiative was developed to create a link between senior nursing students in a baccalaureate program and expert nurses to develop evidence-based policy. The idea grew out of participation in a series of workshops aimed at creating clinical scholars of expert bedside nurses. The initiative is supported by recommendations in the literature on the clinical nurse leader (AACN, June 2004) and in the Institute of Medicine's (2001) Quality Chasm report, which recommends that evidence-based practice be a core competency of education for all health professionals. The initiative was developed in a 600-bed northern New

England tertiary care center with an affiliated university-based college of nursing.

Involving students in policy revision has a number of benefits. First, it is meaningful work. Time spent on an assignment that will be used to update and possibly change practice is a relevant and pragmatic use of students' time and talents. Students are skilled in using library resources, searching databases, and reading and critiquing research. Second, involving students in evidence-based initiatives may make them more likely to embrace evidence-based thinking in later clinical practice, thus sowing the seeds of clinical scholarship.

Developing this initiative involved working in collaboration with the hospital's research and procedure/policy committees. The research committee has been engaged for 3 years in developing a cadre of clinical nurse scholars, baccalaureate prepared nurses, and experts in clinical practice, who are being formally educated in evidence-based practice through a series of interactive workshops. A clinical nurse scholar from this expert group created the template used by students to write and revise policies and procedures. A subgroup of the research committee made recommendations for reporting level of evidence; these recommendations have been incorporated into the assignment.

The faculty instructor obtained a list of policies up for review and allowed students to select those of interest. Student work involved literature review and clinical inquiry; students were encouraged to informally access experts in revising policy. Students were encouraged to look at individual research, at clinical standards, and at meta-analyses and integrated reviews when available. Students were required to consider the most recent literature (within the past 5 years) or to explain their choice of literature based on availability of information in the content area. Students were required to review a minimum of five articles; however, many students reviewed 10-15 articles. Finally, students were asked to summarize the scope of available literature and to identify where evidence supported practice. Policies were sent to identified experts who will use them to finalize institutional policy. Student work was evaluated by the instructor (see Table A).

In the first semester of the project, a total of 29 policies were reviewed/ revised by 63 students (most worked in groups of two; several policies were written by more than one group). One additional policy was recommended by two students who identified a need for a policy to assess depression prior to discharge for patients who had experienced a stroke, an MI, or cardiac surgery. These students were encouraged to develop the policy and to write a rationale for its inclusion in the manual. Students cited type and level of evidence and often provided rationale for additions/ changes to policy. Leveling of evidence (see Table B) was based on Cheryl Stetler's (2001) work and the Iowa Model of Evidence Based Practice for Quality Care (2002). An additional category was added for traditional practice **(T).**

Lessons Learned: Formative Evaluation

A second group of policies was reviewed this fall and are currently under review by the policy and procedure committee. These papers were submitted to the committee in both electronic and paper format and all sources were included. Although the committee is considering evidence from student work in policy revisions, a full acceptance of leveled, evidence-based policy is not yet evident. Expert nurses schooled in the clinical scholar model, however, have embraced the project, have served

as student mentors, and continue to press for approval of evidence-based policies. Coaching and support for expert nurses in their work with students need to be more formalized. While it was evident that the students found the work engaging and useful (student evaluations, spring and fall of 2004), there is work to be done on the process. Some students worked informally with staff nurses in writing policies and they found this to be most satisfying. Working with a clinical expert nurse from the beginning in writing policies would be of benefit to all students. Students found working in teams was beneficial. Students wished their work could be credited in some way by the policy and procedure committee.

As the instructor in the course, I learned several important lessons. The research course must be a prerequisite for this class. Involvement of clinical experts must be incorporated in designing the assignment. At a recent conference, a nurse educator suggested having students present their work to staff. This would be an excellent way to disseminate newest knowledge and to create dialogue between novices and experts. Clearly, this initiative has a “value added” component for professional education as it relies on teamwork, promotes evidence, applies quality improvement strategies, and is centered in patient care. This involves four of the five core competencies recommended in the IOM (2001) report on improving clinical education. Students became engaged in (hopefully) a lifelong skill of using research to question outdated practices; to create meaningful practice; and to foster autonomy, credibility, and critical thinking at the bedside.

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Curiosity and Reflective Thinking: Renewal of the Spirit

What follows when nurses integrate evidence more deeply into practice? In this moving essay, Tania Strout holds that the clinical scholar has the power to give nurses back their identity.

In their Clinical Scholarship White Paper, the Sigma Theta Tau International Clinical Scholarship Task Force (1999, p. 4) defined clinical scholarship in the following way:

> Clinical Scholarship is an approach that enables evidence-based nursing and development of best practices to meet the needs of clients efficiently and effectively. It requires the identification of desired outcomes; the use of systematic observation and scientifically based methods to identify and solve clinical problems; the substantiation of practice and clinical decisions with reference to scientific principles, current research, consensus-based guidelines, quality improvement data and other forms of evidence; the evaluation, documentation and dissemination of outcomes and improvements in practice through a variety of mechanisms including publication, presentations, consultation and leadership; and the use of clinical knowledge and expertise to anticipate trends, predict needs, create effective clinical products and services, and manage outcomes.

For me, these words are central to my identity as a nurse. Meeting needs effectively, solving clinical problems, using clinical knowledge and expertise to manage outcomes—these are all things that, as clinicians and scholars, we do *every day.*

Becoming a clinical scholar has changed the way that I think, changed the way that I approach both the world and my patients. I believe that over the last 11 years of my nursing career, we have been stripped of our identity as nurses. We have been forced by the changing health care system into limited roles where we have become task-completers, going home each night feeling as if we did not have time to be a “real nurse,” to really connect with our patients, to honor their individuality and preserve their dignity.

Acknowledging our roles as clinical scholars, promoting evidence-based practice and research, has given us back our identity as nurses. It allows us to present evidence that what we do as nurses matters. It allows us to

show the world that treating patients as whole human beings makes a difference and that routine vital signs every 4 hours on every patient probably do not. Practicing as a clinical scholar supports that quality care is more than giving the right meds at the right times. Using evidence in our practice, we can substantiate that touch really matters and that human dignity, compassion, ethical behavior, integrity, and social justice all matter in the lives of our patients.

Evidence-based practice (EBP) gives us a voice. It allows us to question practices steeped in years of tradition. It forces us to wonder if there is a better way, if we are doing all that we can, if we can somehow do it better next time, if we even need to do it at all. It makes me take into account the preferences of my patients and the wisdom of the parents of a small child at 3 a.m., and to treat each of them with respect. It makes me consider what will happen to my patients when they leave me: Will they be able to afford their prescriptions? Will they be able to make their follow-up appointment? Can they read their instructions?

Incorporating evidence into my practice as a clinical scholar is not a committee meeting that you attend once a month and forget about the other 30 days. It is a different way of thinking, a different way of approaching the world, a different way of responding to it. It is a culture. Evidence-based practice is central to *everything we do* as nurses.

For me, the process of becoming a clinical scholar and then watching as my nursing colleagues have done the same has renewed my spirit and allowed me to reclaim my authentic self as a “real nurse.” I observe these changes in my colleagues as well, as they become strong patient advocates, always focused on improving the quality of the care given to our patients and families. The ability to measure the impact of our EBP interventions on the quality of care and outcomes sustains us through the challenges of increasing acuity, limited staffing, and tight budgets.

And so, as you go through the rest of your day and wonder what *you* can do to support evidence-based practice and clinical scholarship, I hope you will consider the following, also from Sigma Theta Tau International's Clinical Scholarship White Paper (Clinical Scholarship Task Force, 1999, p. 4):

> [Clinical scholarship] is likely to flourish in a context that includes many of the following features:
>
> - Where the administration understands the importance of clinical scholarship and supports it;
> - Where creativity, questioning, innovation are promoted and valued;
> - Where the improvement of clinical outcomes and efficiency are expected, encouraged and rewarded;
> - Where there are consistent and accessible vehicles for disseminating innovations and outcomes of clinical scholarship and for exposure to the clinical scholarship of colleagues;
> - Where evidence-based practice and the application of new knowledge are institutional expectations;
> - Where there are mechanisms through which novice scholars work with senior scholars who serve as role models, mentors and consultants;
> - Where resources, including time, technology, and

access to knowledge are accessible in the clinical environment;
- Where there is mutual respect and collaboration between nurses and professionals in related disciplines; and
- Where linkages with academic nursing are established so that clinicians and academicians can work together to improve patient outcomes.

The difficulties faced by nurses implementing models for evidence-based practice and clinical scholarship quickly evaporate leaving only the sweetness that comes from having true clarity of purpose and direction. We challenge you to experience renewal of the nurses' spirit for yourself.

Our Collective Responsibility

"All nurses, as members of a practice-based discipline, share in the obligation to take part in generating its scholarship. Because nursing scholarship must be built from a foundation that links academy and practice, a basic tenet of a universal model of nursing scholarship is that all nurses are stakeholders in the advancement of global nursing knowledge. As stakeholders they share in an obligation and responsibility to advance nursing scholarship."
Riley, Beal, Levi, & McCausland, 2002, p. 384

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Tania Strout, RN, BSN, is the research nurse for the Department of Emergency Medicine at Maine Medical Center in Portland, Maine, where she has worked since 1998. In addition to her role as research nurse and clinical scholar, she remains a per diem clinical staff nurse in the emergency department. Ms. Strout's work as a Clinical Scholar began when she was a full-time clinical nurse with her participation in clinical nursing research. She and her colleagues, funded by a joint grant from the Emergency Nurses Association Foundation, Sigma Theta Tau International, and the Emergency Medical Foundation, have completed several studies in the areas of pediatric and adult procedural pain, pain assessment, pain measurement, and triage systems. In 2001, Ms. Strout, Dr. Schulta, and their ED nurse colleagues were awarded the Research Award by the Emergency Nurses Association. Currently, she is the primary investigator for an interdisciplinary study developing an agitation rating scale for use with acute presentation behavioral management patients. In her roles as research nurse and clinical scholar, Ms. Strout serves as a research mentor for medical and nursing students, nurses, and physicians. The focus of her mentoring work is on the development of basic research skills and in assisting professionals from many disciplines to work together in successful collaborative teams. She received her baccalaureate degree in nursing from the University of Southern Maine where she is currently matriculating in the MPH Health Policy and Management program.

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Dear Diary: Rewards and Challenges of Applying the Evidence

It's no surprise that changing a standardized protocol is a complex undertaking. But rewards and valuable lessons await nurses who take the journey. Read this staff nurse's real-world account, and see how the clinical scholar model supports the difficult work of change.

Project Background

The staff nurses in our intensive care unit dedicated to the recovery of cardiac surgery patients are well acclimated to the use of standardized protocols for treatment of our patients. We asked the clinical question "Is the unit protocol that is currently in use to treat postoperative nausea and vomiting (PONV) evidence based?"

Our core work group consisted of three staff nurses from the unit. Our instinct as clinicians told us we could do better in reducing or managing the significant problems our patients were experiencing due to PONV. We conducted a chart audit over a 2-week period and tracked the documented incidence of PONV. We found that 39% of the patients had some experience with PONV during this time period. This internal evidence confirmed our assessment that PONV was a significant clinical issue for our patients.

We also examined the external evidence on this topic. We have found there is a huge amount of information on the prevention and management as well as risk assessment of PONV. We decided to explore whether or not any of the voluminous information had been synthesized (e.g., a meta-analysis, systematic review, or clinical guideline). We found a set of clinical guidelines (Gan et al., 2003) that were particularly applicable to our practice, and we worked on critiquing the guidelines and extracting information from these guidelines to develop a protocol. At this point we invited one of our primary anesthesiologists to join our work group. He became our "point" person in anesthesia; as a stakeholder in the project, his active involvement and expertise in this particular area were invaluable. As we reviewed the external evidence, we decided to conduct a more extensive chart audit prior to implementing any changes in our unit's protocol. We developed a data collection sheet and planned 1 month of systematic tracking on all patients to establish our baseline practice.

The following diary was reconstructed from notes that I took in my daily planner during the development and implementation of an evidence-based PONV protocol for postoperative cardiac surgery patients. The *naissance* of this project was anecdotal concern by staff nurses in the Cardiac Surgery Recovery Unit that PONV was a significant problem for the patients in our

unit. The evidence-based workshops described in this issue of ENK (Schultz) provided the framework and work time to conceptualize the issue.

I have attached a copy of an abstract of the project for your perusal. But, sometimes the story of a project is really not conveyed by an abstract or synopsis. The challenges and rewards encountered in the implementation of evidence in practice in a complex hospital setting are sometimes unexpected, unforeseen, and even unimaginable. The conversations and controversies that may surface can be easy to predict and, then again, can be very unpredictable.

So, I have revisited this project's implementation in an informal way to give you, the reader, an opportunity to experience this clinician's perceptions of the complexities, challenges, and rewards of my role as a clinical scholar in an acute care setting.

Abbreviations
PONV postoperative nausea and vomiting
EBP evidence-based practice
POD postoperative day
IRB Institutional Review Board

August 2004 Pre-Implementation Phase
It has been quite a project just getting to this point. Before we could do any extensive data collection, we felt it was necessary to submit our project to the Institutional Review Board (IRB). Our project is really an evidence-based quality improvement project, but it does involve collecting demographic data on patients and we wanted to make sure we met all IRB requirements as well as the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations regarding the manner in which we collected patient information data. Our study received an "exempt" approval, which meant that we did not need to obtain written informed consent from each patient, but we did have to pay close attention to all identifying information.

I don't know why but I really blocked when it came to filling out the IRB application. It took me a long time to "summon" the initiative to find out what the IRB needed from us. Luckily, there was a very helpful person working in the IRB office, and she made the whole process as painless as possible by e-mailing all the forms to me (which, of course, I could not seem to locate on the Web page for the IRB) and coaching me in filling out the application.

We needed to collect length of stay data on patients; therefore, we needed to collect some patient identifiers. We also planned a brief postoperative interview on their experience with PONV. There are very specific rules about how to do this. For example, we had two notebooks: one that had the identifying system in it (we called this the Identifier Notebook) and the other had de-identified patient information (we called this the Data Notebook). Once we are finished with the project, we will destroy the information in the Identifier Notebook.

September 2004
This is the month we are beginning data collection. Prior to implementing our project, we decided to do a month-long systematic chart review on all cardiac surgery patients. The data we are collecting are derived from our interests with this population and the current state of the art for risk

assessment of PONV (Apfel et al., 2002). All our patients fall into the moderate risk category because of long surgical procedures and the use of postoperative opioids in the treatment of their pain. Additional risk is derived from non-smoker status, female gender, and a history of motion sickness.

Just organizing the data collection process itself and figuring out by whom and when data would be collected was a logistical problem. Well, the actual problem is that there are not enough people to help collect data. Of the three of us, two work full time and I work per diem. We recruited another full-time nurse to help, but without a dedicated data collector we were scrambling to interview patients before they are discharged from the hospital. Realistically, we are a very busy unit with high patient acuity, and there is no time for data collection during our patient care hours. Clearly the easiest solution is to come in on unscheduled time and collect data, but full-time nurses really prefer not to come in on their days off for any reason. As the only per diem in the group and because I live closest to the hospital, I ended up doing the bulk of data collection.

The actual data collection sheet had been revised twice prior to approval by the IRB. The IRB administrative assistant helped us understand what can and cannot be on the data collection form. We cannot have any dates on the actual data collection sheet as any date associated with a patient's hospitalization is considered an identifier. This poses a bit of a challenge because for our study we need to know the date of surgery and which postoperative day anti-emetic medications are administered. But, we have figured out how to accomplish this on the record without putting the information on the data collection form (see attached). We use our Identifier Notebook to figure out the date of surgery and collect data only as POD 0, POD1, POD 2, etc. Length of stay data is collected without recording dates by waiting until the patients are discharged and writing down the number of days the patient was hospitalized post-surgery.

Mid-September 2004

I am 2 weeks into data collection, and I am totally exhausted trying to keep up. Actually, I am steadily falling behind in collecting data. In our quest for all this information, I really underestimated the amount of time it takes to collect all the information that we wanted to collect. In addition, there is a patient interview regarding perception of nausea treatment that, while brief, takes considerable time. Right now I am behind on collecting chart data, but I can always request a study by Medical Records so that I can gather that data post-discharge.

The one part of data collection that I absolutely must complete prior to patient discharge is the interview questions, designed to be asked postoperatively. I actually really like this part of the project because I chat with patients and find out their perceptions and perspectives on their care. The interview begins when I travel to our step-down unit on POD 3 or later and introduce myself to the patient as a staff nurse from the immediate postoperative recovery unit. I explain in a very concise manner the nature of the project and ask for the patient's permission to be interviewed. I decided that I would not stop being a bedside nurse when I walk into the patient's room, so I do get involved in helping patients if a need arises. Our interview is very focused on the experience of PONV, but if a patient has a problem or need, I just have to take off my research hat to help and involve the patient's assigned nurse as necessary. If a patient is sleeping or otherwise should not be disturbed, I do not wake or disturb him even if it means that I miss the interview.

I have enjoyed getting to know the step-down unit nurses—one of the rewards of the project. This unit is actually the “sister” to our intensive care unit so there are a lot of familiar names that I have learned to put with faces. I have tried to be respectful of the staff; I introduce myself and explain who I am and what the purpose of the PONV EBP project. It is interesting to get feedback from these nurses on the issue of PONV on their unit. In addition to the bedside nurses, the ancillary unit staff members have gotten used to seeing my around. It feels somewhat strange being “transplanted” and a little disorienting being off my “turf.” But, developing relationships with this staff fosters discussion on clinical topics, and it has given me a chance to see the bigger picture of what happens to patients after discharge from my unit and to follow their path to discharge from the hospital.

I remind the nurses on the step-down unit that they actually adopted evidence-based practice based on their own clinical acumen in the area of PONV. The nurses on this unit had already figured out that Compazine (prochlorperazine) worked much better than repeated doses of Zofran (ondansetron) for ongoing nausea. This principle of multi-modal therapy is one of the tenets of the guidelines we used to synthesize our protocol. Let's hear it for the intuitive knowledge of the bedside nurse!

Late September 2004

Data collection is still ongoing but the end is in sight. We have a draft protocol more or less written. I seem to have writer's block about actually writing the draft protocol. I guess I keep looking for someone else to do the writing, but I have realized that our team has had enough discussions with our anesthesia contact and that it is simply time to write the proposal. So, I have just written down what I have learned from the critique of the literature and the published guideline and asked other nurse members of the team to review it. If they think it is okay, I will start e-mailing it to all the stakeholders.

The way in which this protocol differs significantly from our current practice is that we currently have been using primarily Zofran for rescue treatment of PONV in our patients. There is no prophylactic treatment of our patients and Compazine and Phernegan are used infrequently in the intensive care unit. Previously, we had used droperidol as our first line rescue for PONV, but this medication was removed from our pharmacy's formulary after the FDA's Black Box warning on this drug. The evidence suggests our patient population is at moderate to high risk of PONV (because of the length of surgery and the use of postoperative opioids) and would benefit from prophylactic treatment. In addition, rescue treatment of PONV should use agents that work by different mechanisms as there is little treatment efficacy demonstrated in re-administering the same agent repeatedly.

I have anxiously awaited feedback this week after e-mailing our major stakeholders the draft protocol. Stakeholders include the chief of our service, a physician's assistant (PA) from the service, a pharmacist, and two anesthesiologists. Our primary contact from anesthesia has e-mailed me with some good feedback. The changes are minor and it was reassuring to have his support for the protocol.

Armed with our preliminary data (approximately 50% of our cardiac surgery patients receive an anti-emetic and no pre-emptive treatment) and a draft of our protocol, it was time to actively involve the chief surgeon of our cardiothoracic service and a most-experienced physician's assistant. Both of these stakeholders had consented to be involved early

on in the project but up to this point were not actively involved in developing the protocol. We updated them in an early morning meeting and they suggested we bring the project to a weekly cardiothoracic division meeting. Concerned with losing our momentum, another nurse from team and I sought out the division director and presented our proposal, thus securing a spot on the agenda that very week.

September 30, First Division Meeting
Our strategy for this first meeting was to present the information to the surgeons and PAs on the service and give them time to consider the internal and external evidence. We made an informational packet for each person that contained the goals of the project, a copy of the draft protocol, an abstract that overviewed the project, and pertinent literature. We included the two articles that were most seminal, the Gan et al. (2003) review article, which contained the guidelines and an important article from Halvorsen et al. (2003) that addressed the safety and efficacy of dexamethasone given prior to coronary artery bypass surgery. In our discussion with the chief surgeon the previous week, he had cautioned us that the safety and efficacy issue might be a point of controversy for some of the surgical staff.

The goal of this meeting was simply to present the information concisely and to invite feedback at the division's next meeting. The presentation went well and the chief surgeon and another surgeon spoke of their support of the project.

I believe it was helpful to have the goals of our project clearly outlined and presented to the stakeholders at this meeting. Of particular importance was the goal stating that our project should not compromise the pain management of our patients postoperatively, that is, we should not minimize narcotic usage in order to prevent PONV.

October 7, Second Division Meeting and Protocol Approval
Once again we reviewed the draft protocol before the entire cardiothoracic service. In addition, I invited the two anesthesiologists on our work group to the meeting so their perspective could be heard. Their presence proved to be very important as the surgeons specifically wanted to hear the anesthesiologists' input. The anesthesiologists clearly provided strong support for the project; the division decided to support implementing the protocol. An e-mail has been to all staff members to update them on the protocol change and invite input. Flyers on the change have been posted on the unit. I personally have tried to speak with a core group of nurses that admit most of the cardiac surgery patients to the unit. They seem knowledgeable about the project; I invited them to e-mail or call me should any questions arise.

October 25, Final Draft Protocol Sent to Division PA
One of the PAs on our service has been a great help in having the new order set for our protocol entered into our computerized ordering system. She was actually able to accomplish this in about 24 hours! This is no mean feat since I have known this to be a very time-consuming process (i. e., it can take months to accomplish).

The anesthesiologists have worked to let their staff know that dexamethasone should be given on all cardiac surgery cases.

The rest of the order set consists of administering Zofran in the intensive care unit as the patient awakes from anesthesia and administering small

doses of intravenous Compazine (prochlorperazine) as needed. The PA decided to take out all PRN orders for Zofran (ondansetron) from our order set matrix; she was concerned that nurses would continue to practice giving repeated doses of Zofran (ondansetron) instead of switching to a different agent. I was concerned about this change but in discussing it with the PA, I saw her point that protocol implementation would be much better if the PRN Zofran (ondansetron) order was not available.

November 1, Protocol Implementation

It is the first day of protocol implementation, and I stopped by the unit to check in with staff and see how it is going. Everything seems to be going very smoothly; everyone from staff nurses to the unit secretaries and PAs know about the protocol and seem comfortable with it. I have been in contact with our anesthesia contact over the past week, and he is letting his team know that our “go live” date is November 1.

One problem that has arisen is that our unit does not have Compazine stocked on the unit and apparently there is a committee that must okay this change. I have been on the phone with different pharmacy representatives to work on this, and I am hopeful we can work this out in a timely manner. In the meantime, nurses can order Compazine from the pharmacy, but there can be a delay involved in receiving the medication. Not the best scenario when you have a patient who is nauseated and/or vomiting. I later found out that we had bypassed a pharmacy committee that normally reviews all new order sets. I ended up e-mailing a lot of our work to the committee chair and will keep them in the loop from now on. Our pharmacist stakeholder in the group has helped us work through this issue.

November 15

Nursing adherence to the new protocol has been outstanding. Anesthesia's adherence to the protocol has been inconsistent. The PA has actually helped work on this aspect by taking the initiative to speak with the lead anesthesiologist and set up a system that helps ensure the dexamethasone is given in the operating room.

Data collection has been very difficult as I do not have enough data collectors. I am tracking most data through chart review, and I have had to “sacrifice” the patient interview piece of the data collection as I simply cannot keep up with this piece prior to discharge.

November 30

It does look like anesthesia's protocol adherence has improved over the past week since the PAs intervention. Nurses on the unit feel the protocol is working well for them and that there are fewer problems with PONV since protocol implementation. I am still compiling data for the month; the data are too preliminary to report. The data trends in the right direction though with outstanding adherence to the protocol by staff nurses both in the intensive care unit and on the step-down unit. Anesthesia's adherence to the protocol has been steadily improving as the “word” has gotten out and reinforced. Our data are still preliminary but it appears our overall frequency of PONV has diminished even though most patients did not receive both prophylactic anti-emetics.

I have received great feedback from staff—especially nurses and PAs—about how the protocol is working. Their clinical impression is that the change in our protocol has made our treatment more efficacious. The hard work of organizing this project and the many discussions and

conversations we have had have really built an effective team approach to this problem, and our core group is feeling pretty darn good about the project.

Our next major part of this project is review of the data. We are excited to see what positive impact our protocol has had. The cost analysis should prove interesting too as we think we will have both cost recovery (due to improved charting of medications) and cost reduction (due to less usage of costly ondansetron).

Epilogue

This project has provided our core work group of clinical staff nurses with the opportunity to examine our practice and network professionally with our colleagues to improve patient care. This diary reflects the dynamic nature of implementing an evidence-based practice project. Our project is still very much a "work in progress" as we continue to gather data and evaluate the protocol's impact on patient outcomes.

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About the Author

Kathleen Keane, RN, BSN, CCRN, is a registered nurse at Maine Medical Center (MMC) in Portland, Maine, and works in the Cardiac Surgery Recovery Unit. Ms. Keane has enjoyed working in the critical care setting at MMC for the past 9 years after graduating with her BS in nursing from Columbia University in New York, NY, in 1990. She was inducted into the Honor Society of Nursing, Sigma Theta Tau International as a member in 1990 and is also a member of the American Association of Critical Care Nurses. Ms. Keane has been actively involved in the Clinical Scholar program for the past 5 years, participating as a member of the symposia presented at the Sigma Theta Tau International biennial conference in Toronto and the Sigma Theta Tau International Research Congress in Dublin. In addition to her work with evidence-based practice projects, she has also served as the co-principal investigator on an internally funded study to develop a pain assessment scale for non-verbal adults. She has presented this work at national conferences.

ENK voices of evidence in nursing
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Chief Nursing Officers Focus on Safety Agenda

SAN DIEGO, Dec. 16, 2004 – Nationally recognized experts gathered in Indianapolis, IN on Nov. 3-4 to emphasize the leadership role nurses must play in making patient safety a priority within the healthcare system. The nation's first Chief Nursing Officers (CNO) Patient Safety Leadership Forum, organized by Clarian Health Partners of Indianapolis and sponsored by Cardinal Health, brought together top nursing executives from institutions worldwide, as well as distinguished speakers from the healthcare industry, to apply their collective expertise in addressing and defining nurses' role in making patient safety a priority.

The forum agenda highlighted a series of Institute of Medicine reports on patient safety and best practices for how nurses can improve safety within their individual hospitals and through the implementation of practices developed by national organizations, such as JCAHO, Leapfrog, the FDA and CMS. Roundtable discussions at the Forum identified strategic initiatives that nurses should take in four key areas to accomplish this:

- Technology
- Patient safety models
- Nursing leadership
- Patient safety research

Chairperson Karlene Kerfoot, Ph.D., R.N., FAAN, senior vice president and chief nursing officer of Clarian Health Partners, said that the Forum set an important precedent in bringing nursing leadership to the forefront of the patient safety movement. "This first CNO Forum succeeded in developing a clearer, more unified direction for nursing's critical role in improving patient safety, as well as specific actions we should take to fulfill that mission," Kerfoot commented. "All of us must view patient safety not as a competitive agenda, but a collaborative one, where we share data and ideas for improving the levels of safety and care that we deliver at each of our hospitals."

Jeffrey B. Cooper, Ph.D., director of biomedical engineering for Partners Healthcare System in Boston, and associate professor of anesthesiology at Harvard Medical School, cited anesthesia safety as an instructive example of what can be accomplished. "Anesthesiology, plagued by a malpractice crisis from 1975-1985, achieved impressive gains in patient safety and can serve as a model for nursing," he said. "The history of anesthesia safety shows that it can be done."

Dr. Cooper explained that surgical anesthesia, which once had an error rate of 25 to 50 per million patients, reduced its error rate nearly seven-fold. "The first step was collection of data that permitted a systems analysis of errors, rather than a hunt for 'responsible' individuals," he explained. "Through teamwork, practice guidelines, automation, procedure simplification and standardization, anesthesiologists showed that a properly designed system can prevent mistakes or prevent mistakes from doing harm. Today, anesthesiology has among the lowest error rates of any specialty."

With few exceptions, nurses who are closest to patients and whose

work is most affected by new practices and technologies are not at the table when key patient safety decisions are made. "If it touches the patient, it should have the nurse's touch," emphasized Gloria Whitson-Shea at Grand River Hospital in Kitchner, Ontario. "The fact is that no patient safety program can succeed unless it has nurses at its core."

"The Clarian system has worked to close this gap," Kerfoot said. "The institution has been designated as a Magnet hospital by the American Nurses Credentialing Center and has earned a reputation as a patient safety leader, with its award-winning Safe Passage© nursing program. With this program, a Safe Passage© clinician is designated by each hospital unit to become the local safety expert and to work jointly with unit staff, risk management, physicians and other departments to continuously find ways to identify and prevent mistakes before they happen."

The Safe Passage© program is headed by Kathy Rapala, RN, JD, director, risk management and patient safety at Clarian, who recently won the first "Todd Pickett National Patient Safety Award" from the American Society for Health Care Risk Management (ASHRM). This new national patient safety award is named as a tribute to a patient, Todd Pickett of San Diego, Calif, who died due to a tragic medical error.

Kerfoot also noted that Clarian has been aggressive in implementing technologies at the point of care to help keep patients safe. Clarian was the first health system to fully implement "smart" IV medication safety system technology developed by Cardinal Health Alaris® Products, which helps protect patients and nurses from IV medication dosing errors. The safety software in the system also collects actual use CQI (clinical quality improvement) data for analysis and development of best practices.

To accomplish the goals established at the Forum, participants developed several specific recommendations for action, including:

- Give nurses responsibility in the development, purchase and implementation of patient safety technology so that they can become the architects of change.
- Partner with key health care associations to endorse and promote a model such as Safe Passage so hospitals nationwide can learn from proven practices to specially train nurses to take the lead in identifying trouble spots to prevent mistakes and move patients safely through a health care system.
- Develop a process that transforms the work environment into a safe culture, and remove unnecessary work from the nurse's realm of responsibilities so that s/he can focus on patient safety issues.
- Encourage state hospital associations to use a percentage of dues to fund patient safety programs, leveraging association members with matching funds.

The nursing leaders and others attending agreed that the momentum coming out of this first CNO Patient Safety Forum should be sustained through additional gatherings linked to national safety meetings such as the National Patient Safety Foundation and the national meeting of Magnet hospitals, as well as other invitational conferences in 2005 and beyond.

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Summing up the feeling of many at the Forum, participant Carol Olson, vice president of nursing at Good Samaritan Hospital in Vincennes, IN, commented, "More than anything, we have to draw the line in the sand at zero errors. Being here has given me the courage to say to my staff, 'OK, here's what we're going to do, and here's how we'll get there.'"

About Clarian Health Partners

Clarian Health Partners, comprised of Methodist Hospital, Indiana University Hospital and Riley Hospital for Children, is an Indiana-based, private, non-profit organization, offering a broad base of tertiary services, specialized pediatric care and a Level 1 Trauma Center. Clarian is Indiana's first Magnet Hospital System, its largest, most comprehensive health center and is one of the busiest hospital systems in the nation. Clarian Health's mission is to improve the health of patients and the community through innovation and excellence in care, education, research and service. To fulfill its mission, Clarian uses the combined resources of its sponsoring institutions and its continuing affiliation with Indiana University School of Medicine, one of the nation's leading medical education and research centers. Clarian Health Partners, Inc. operates the Methodist Hospital, Indiana University Hospital and Riley Hospital campuses as a single hospital under Indiana law.

About Cardinal Health

Cardinal Health, Inc. (www.cardinalhealth.com) is the leading provider of products and services supporting the health care industry. Cardinal Health develops, manufactures, packages and markets products for patient care; develops drug-delivery technologies; distributes pharmaceuticals and medical, surgical and laboratory supplies; and offers consulting and other services that improve quality and efficiency in health care. Headquartered in Dublin, Ohio, Cardinal Health employs more than 55,000 people on six continents and produces annual revenues of more than $65 billion. Cardinal Health is ranked No.17 on the current Fortune 500 list and named one of the best U.S. companies by Forbes magazine for 2004.

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Except for historical information, all other information in this news release consists of forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected, anticipated or implied. The most significant of these uncertainties are described in Cardinal Health's Form 10-K, Form 8-K and Form 10-Q reports (including all amendments to those reports) and exhibits to those reports, and include (but are not limited to) the costs, difficulties, and uncertainties related to the integration of acquired businesses, the loss of one or more key customer or supplier relationships or changes to the terms of those relationships, changes in the distribution patterns or reimbursement rates for health-care products and/or services, the results, consequences, effects or timing of any inquiry or investigation by any regulatory authority or any legal and administrative proceedings, the effects, timing or success of restructuring programs or plans, the impact of previously announced restatements, and general economic and market conditions. Cardinal Health undertakes no obligation to update or revise any forward-looking statement.

Please note: An Executive Summary of the CNO Patient Safety Leadership Forum is posted at www.alarismed.com and www.clarian.org.

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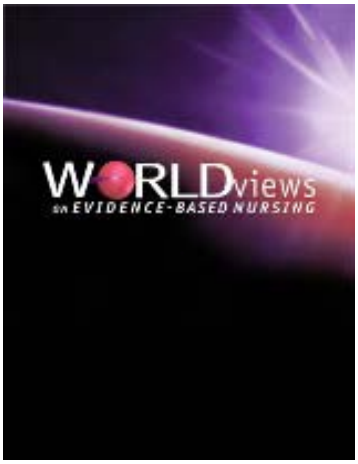

Worldviews on Evidence-Based Nursing

Previewing 2005

Worldviews on Evidence-Based Nursing in its Second Year – Previewing 2005

As *Worldviews on Evidence-Based Nursing* enters its second year, our vision remains that the journal will be at the forefront of the resources available in the field of evidence-based practice internationally.

The first issue of 2005 (March) sees the publication of a new section, which aims to provide useful and relevant information for those in the business of teaching and educating others in evidence-based practice. This resource will now be a regular feature of the journal. Later in the year we are planning a special issue on the topic of restraints. We hope to publish papers that address the difference between the evidence base and actual practices across the gamut of restraint forms and the various patient populations and clinical contexts.

During the year we will also be conducting a readership survey; we are keen to be responsive to our readers' comments and therefore welcome feedback about the journal and its direction through the survey, but also on an ongoing basis.

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Next Month in ENK

Governance at the System Level

At Centra Health in Lynchburg, Virginia, CNO Golden Bethune doesn't know everything her managers are doing. She does know that turnover is down, nurse vacancy rates are down, and patient satisfaction is up. Bethune has led the effort to create a full governance program that shows directors and managers how to lead, that supports them in making decisions, and then she gets out of the way. Next month in ENK, you'll read about the governance program in this pre-Magnet system and what it has meant for nurses at all levels.

Clinical Scholar Model

Curiosity ~ ~ Reflective Thinking

OBSERVE

IDENTIFY THE ISSUE

Patient/Family Driven **Data Driven** **Staff/Practice Driven** **Knowledge Driven**

DETERMINE

Significance
Independent or Interdependent Practice
Key Stakeholders
Outcome of Interest
Feasibility
Cost / Benefit
Risk / Benefit

ANALYZE

EXTERNAL EVIDENCE

~ ~ ~ ~

Research Articles
Systematic Reviews
Meta-Analyses
National Guidelines

INTERNAL EVIDENCE

~ ~ ~ ~

Affirmed Experience
Retrospective Chart Data
Quality Improvement Data
Risk Management
Patient Satisfaction
Nurse Satisfaction

SYNTHESIZE

Integrated Tables
Strength of the Evidence

INCOMPLETE EVIDENCE

~ ~ ~ ~

Complete IRB Ethics Program
Prepare Proposal
Complete Study

COMPLETE / ADEQUATE EVIDENCE

~ ~ ~ ~

Create or Review Policy, Procedure, Protocol
Clinical Pathway

APPLY

Educate Staff
Implement on Pilot Unit
Monitor Outcomes
Evaluate

~ ~ ~ ~ ~ ~ ~

Implement House wide / Change to New Practice/ Discard Old Practice
Monitor Outcomes

DISSEMINATE

Present Findings (Internally / Externally)
Publish an Article

Clinical Scholar Model link from page 4

What Makes A Clinical Scholar?

High Level of Curiosity

Critical Thinker

Continuous Learner

Reflects on Experience

Seeks and Uses a Wide Spectrum of Resources

Uses Evidence to Improve Effectiveness of Interventions

NEVER STOPS ASKING <u>WHY?</u>

CONCEPTUALIZE A POTENTIAL EVIDENCE-BASED PRACTICE PROJECT
(Is it important? Can it be researched? What is the current research base?)

1. ISSUE/PROBLEM	2. ADMINISTRATIVE/ CLINICAL SIGNIFICANCE	3. OUTCOME OF INTEREST Dependent Variable	4. HOW DO/WILL YOU MEASURE THE OUTCOME? Monitor changes	5. INTERVENTION/ TREATMENT Independent Variable	6. FEASIBILITY
Population of Interest:					List Stakeholders Support you will need Time & money

OPERATIONALIZE THE EVIDENCE-BASED PRACTICE ISSUE
(Getting ready to search for the science/*external evidence*)

1. Clearly define the problem. What is the current practice? Why is it a problem (e.g., poor outcomes, costly, etc.)? What is the patient population of interest?

2. Significance. Is the problem/issue significant only to nursing and/or to other disciplines? Is it significant to patients and/or families? Is it significant after discharge?

3. Outcomes. What is "it" about this problem that you wish to change? Nurse-sensitive outcome or interdisciplinary-sensitive outcome?

4. How is the outcome (dependent variable) currently measured or could be measured? Is it currently measured as QI? (internal evidence)

5. Intervention or treatment. Is there a current policy, procedure, or protocol? Is the treatment based on tradition or science? What actions affect the outcome?

6. Feasibility. What are the resources necessary to study/change the practice?
   - Support you will need
   - Cooperation of others
   - Time and money
   - Availability of participants
   - Ethical considerations
   - Equipment

7. List terms for computerized search.

8. WRITE THE PROJECT QUESTION:

RESEARCH ARTICLE SUMMARY
Schultz Table©

Alyce Schultz, RN, PhD, FAAN
Nurse Researcher
University of California Davis Medical Center, Sacramento

Study Citation, Include Country & Funding Source	Purpose	Design	Setting Subjects	Results/ Findings	Implications for Practice/ Limitations	Methods	Data Analysis	Decision for Use
	Research Questions/ Hypotheses:	Design: Demographic Variables: Independent: Dependent:	Where: Who: Size (power analysis) Selection Criteria: Demographics: Attrition:	Briefly describe answers to research questions: Other Possible Explanations:	Limitations:	Intervention/ Procedure: Instrument: Data Collection:	Level of Data/Statistic Used Important Statistical Findings:	CHECK ONE: Background only Consider replication Ready for Use LEVEL OF EVIDENCE:

Research Article Table linked from page 6

RESEARCH ARTICLE SUMMARY
Schultz Table©

Alyce Schultz, RN, PhD, FAAN
Nurse Researcher
University of California Davis Medical Center, Sacramento

Study Citation, Include Country & Funding Source	Purpose	Design	Setting/ Subjects	Results/ Findings	Implications for Practice/ Limitations	Methods	Data Analysis	Decision for Use
Schultz, A.; Bien, M.; Dumond, K.; Brown, K.; Myers, A. Etiology and Incidence of Pressure Ulcers in Surgical Patients AORN Journal, September,1999, 70(3) pp. 434-449 Maine Medical Center Portland, Maine Funded by the Association of Operating Room Nurses (AORN)	1. To identify the etiology and actualize the incidence of sacral/coccyx, heel and elbow pressure ulcers in a surgical sample 2. To evaluate the effectiveness of a special OR mattress overlay plus elbow and heel protectors in the prevention of pressure ulcers **Research Questions/ Hypotheses:** What are the risk factors of surgical patients for developing pressure ulcers? Does the use of a special overlay in the OR reduce the incidence of pressure ulcers in surgical patients?	**Design:** Experimental; Double randomization process; Study group blinded to subjects, data collectors & post-op nursing personnel **Demographic Variables:** *Preop:* Admit status; Age; Gender; Body mass; Surgical procedure; Braden scale score; Diabetes; blood work, smoking hx *Intraop:* OR time; friction, shear, moisture, blood loss; diastolic pressures *Post-op:* Time to lst position change; Skin Assessments **Study Variables:** **Independent (**intervention) Standard surgical mattress or new mattress overlay, heel & elbow protectors **Dependent:** (outcome) Development of a pressure ulcer; stages I-IV	**Where**: 20-room OR suite within 606-bed tertiary care setting **Who:** 413 surgical patients **Size (power analysis)** Based on power of .80, alpha of .05 and 40% decrease in incidence rate for exp. group **Selection Criteria:** Scheduled for inpatient surgery w/general anesthesia ≥ 2hr duration; ≥ 18 years; Surgical procedures in supine or lithotomy position *Exclusion criteria*: Evidence of existing pressure ulcer; Severe chronic skin problems; Scheduled for only local anesthesia **Demographics:** Preop inpatient population oversampled to obtain 50/50 inpatient/Same day admits in sample 207 pts-control group 206 pts-experimental group **Attrition**: Not mentioned	**Briefly describe answers to research questions**: No statistically significant differences between control group and experimental group in patient type, cardiac surgery compared to all other types of surgery, secondary diagnoses of diabetes, gender, body mass, lab values, Braden scale scores on admission or on post-op day one, length of OR time, time to first position change, or evidence of shear and friction. Significantly more patients in experimental group (n=55) than in the control group (n=34) developed skin changes (p= .0111) **Other Possible Explanations:** Study group not blinded to OR staff; may have moved patients differently in one group vs. the other	1. Largest prospective randomized study designed to look at skin integrity after a surgical procedure at the time 2. Findings generalizable to similar settings & patients 3. Randomization worked 4. Research assistants, subjects & post-op nursing personnel blinded to study group, reducing bias 5. Incidence rate for more severe ulcers lower than anticipated 6. Total Braden score predictive of patients at risk for breakdown but at 21.5 rather than suggested value of 16 7. Conceptual model recommended by AHCPR not useful for prediction 8. Time on OR table not predictive of skin breakdown 9. Type of OR bed or overlay needs further investigation **Limitations:** 1. Potential generalizability to only moderate or large tertiary centers 2. Trauma & ER patients were not included and may be at higher risk for breakdown 3. Pressure not measured directly 4. Conceptual framework did not provide useful model for predicting patients at risk. 5. Predictive BS score much higher than published value for prediction 6. More than half of patients discharged before last day of study.	**Intervention/ Procedure:** Control group –Padded on discretion of OR nurse w/ gel pads, egg crate, foam donuts Experimental group –Special study mattress foam overlay & elbow & heel protectors **Instrument:** Braden Scale; Pressure–sensing device in first 150 **Data Collection:** Research assistants received special training in the Braden Scale (BS) & identification of pressure ulcers Interrater reliability set at 85% for PU; 90% for BS; Re-evaluation midway Braden scale scores & skin assessments on post-op days 1, 3, 5. Subjects discharged earlier called at home See demographic and study variables for other data	**Level of Data/Statistic Used** *Nominal, Interval* Chi–Square Student's *t test* Logistic Regression **Important Statistical Findings**: 1. Age & admit BS only variables significant in conceptual model 2. Older age, diabetes, smaller body mass, & use of study mattress predictive of developing PU 3. Vascular surgery patients were more likely to develop pressure ulcer (p=.00157) 4. New overlay became non-predictive (p = .0598) when vascular surgery added to regression model	**Check one:** **Background only** **Consider replication** ********* **Ready for Use** **Level of Evidence**: Level II (Baystate Model, 1999)

Research Article Summary linked from page 6

INTEGRATED TABLE (EVIDENCE SUMMARY)

Author (date) Funding	Sample Research Design	Independent Variable/ Intervention	Dependent Variable Outcome	Significant Results	Limitations/ Gaps	Generalizability	Level of Evidence

Author (date)/ Funding	Sample/ Research Design	Independent Variable/ Intervention	Dependent Variable/ Outcome	Significant Results	Limitations/ Gaps	Generalizability	Level of Evidence
Reducing bed rest Following Arterial Puncture for Coronary Interventional Procedures (BAC Trial) Vlasic, W., Almound, D., et al. *Journal of Invasive Cardiology* 2001; 13(12):788-792 Univ. of Western Ontario, Canada	N = 99 - 2 hr Bed rest N = 99 - 4 hr Bed rest N = 101 - 6 hr Bed rest Total = 299 Randomized, controlled, single center trial Blinded until hemostasis achieved	Bed rest – 2, 4, or 6 hr	Vascular complications Major - requiring blood transfusion, surgical repair, ultrasound guided compression prolonged hospital stay Minor - only requiring site compression, Hematoma <5x5cm, Bleeding - soaking two 4x4 gauzes	**2 hr** bed rest 3% hematoma 4% re-bleeding 1% pseudoaneurysm & surgical repair* (*one patient) **4 hr** bed rest 6% hematoma 3% re-bleeding **6 hr bed rest** 5% hematoma 2% re-bleeding	Trial became unblinded after hemostasis	Yes	B
Reducing Time in Bed After Percutaneous Transluminal Coronary Angioplasty (TIBS III) Keeling A.W., et al *American Journal of Critical Care* 2000; 9: 185-187 Univ. of Virginia Health System Charlottesville VA	Experimental control group design Experimental group N = 51 - 4 hr Bed rest Control group N = 20 - 6 hr Bed rest	Experimental group 4 hr of bed rest Control group 6 hr of bed rest	Vascular complications	98% of experimental group - without complication. 1 pt had a small amount of oozing. This pt had had multiple procedures and an ACT > 200 at the time of sheath pull.	Incomplete data collection due to not being able to place pt in the controlled group. MDs were ordering 4 hr of bed rest	Yes	B

Two Hour Ambulation After PCI With 6F Guiding Catheter and Low Dose Heparin Koch, Piek, et al. *Heart* Jan 1999; 81(1): 53-56 Academic Medical Center Amsterdam, Netherlands	Descriptive design Study Population 300 patients	2 hr bed rest	Vascular complications Bleeding at ambulation Late bleeding - ambulation to 48 hr Hematoma > 5x5 cm AV fistula Pseudoaneurysm	1.7% bleeding at ambulation 3% hematoma > 5x5cm No late bleeding	Pts on oral anticoag. or heparin pre- procedure were excluded Use of compression bandage Non-randomized	No Represents a limited number of the patients that would be affected by the change in practice.	C
Early Ambulation After Coronary Angioplasty and Stenting with 6F Guiding Catheters and Low Dose Heparin Koch, Piek, et al. *American Journal of Cardiology* 1997; 80: 1084-1086 Academic Medical Center Amsterdam, Netherlands	Quasi-experimental 420 experimental group 4 hr bed rest 410 control group bed rest overnight	Experimental group 4 hr of bed rest Control group bed rest overnight	Vascular complications Bleeding at ambulation Late bleeding – ambulation to 48 hr Hematoma > 5x5 cm AV fistula Pseudoaneurysm	**Experimental group** All Comp. 2.3% Bleed @ ambul. 0.75% Hematoma >5cm 1% Pseudoaneur. 0.25% **Control group** All Comp. 2.2% Bleed @ ambul. 0% Hematoma >5cm 1.25% Pseudoaneurysm 0.25% AV fistula 0.25%	Pts on oral anticoag. or heparin pre-procedure were excluded Use of compression bandage Non-randomized	No Represents a limited number of the patients that would be affected by the change in practice.	B
A Prospective Randomized Trial of Early Ambulation Following 8F Diagnostic Cardiac Catheterization Bogart, M.A., Bogart, D.B., Ryder, L.B., et al. *Catheterization and Cardiovascular Intervention* 1999; 47:175-178 Kansas City, Missouri	Randomized experimental design Control group N = 100 6 hr bed rest Experimental group N = 100 4 hr bed rest	Experimental group 4 hr of bed rest Control group 6 hr of bed rest	Vascular complications Re-bleeding, hematoma, AV fistula, pseudoaneurysm, limb ischemia, thrombosis of femoral artery. Hematoma – Small < 5cm Medium 6-10cm Large > 10cm	**Experimental group** 1% sm hematoma **Control group** 2% re-bleeding 1% pseudoaneurysm	Post-cardiac cath patients 79% of experimental group; 71% of control group received heparin during the procedure Amount of heparin given during the procedure was not indicated Pts were not on Plavix or Ticlid	Yes	B

PROGRAM LISTING

Evidence-Based Nursing: Strategies for Improving Practice
Sigma Theta Tau International
July 21, 2004
Dublin, Ireland

Click on a session number to view the list of papers that will be presented there.
Then click on a paper title to read the abstract.

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Wednesday, July 21, 2004

9:30 AM-10:00 AM

Posters

10:00 AM-11:30 AM

Caring Practices in the 21st Century: Holistic Practice and Evidence-Based Practice, A Dialectic

Challenging the Status Quo: Impact of Evidence-Based Practice

Changing Nursing Practice

Chronic Care

Clinical Nursing Scholars: Building a Community of EBP Mentors

Measuring and Monitoring Evidence-Based Nursing Outcomes

Methodological Issues

Special Session: Improving the Psychosocial Care and Mental Health/Coping Outcomes of Critically Ill Children and Parents: Evidence to Guide Practice

Strategies to Create Evidence-Based Nursing Environments

Updating Traditional Research Curricula to Reflect EBP Principles: It's about Language, Scope, and Purpose

1:00 PM-2:30 PM

Educational Transformation to Support the Creation of Evidence-Based Nursing Environments

Evidence-Based Nursing with Children

Improving Nursing Practice Through Evidence

Knowledge Sharing Networks: Strategies For Improving Practice

Models for Improved Care

Partnership Councils and Outcomes Engineering: High Impact Leadership Strategies to Create an Evidence-Based Nursing Environment

Research Testing Strategies

Staff Nurse-Driven Evidence Generation and Use: Supporting the Process

Teaching Evidence-Based Nursing: Myth or Reality

Translation Research

2:30 PM-3:00 PM

Posters

3:00 PM-4:30 PM

Creating Work Cultures that Support Evidence-Based Practice

Failure to Rescue: Finding a Feasible, Consistent and Clinical Useful Measure

Implementation of Research Evidence Into Practice: International Perspectives and Initiatives

Knowing and Acting -- A Strategic Practitioner Focused Approach to Nursing Research and Practice Development

Leadership

Nursing Education

Public Policy

Reaching High-Risk Families: Successes and Struggles in Translating Research into Practice

Support for Evidence-Based Practice

The Use of Physical Restraints in the Care for the Elderly

SIGMA THETA TAU INTERNATIONAL

CLINICAL SCHOLARSHIP WHITE PAPER

Knowledge work, in service of care, based on evidence

Developed by the Clinical Scholarship Task Force, 1999

FOREWORD

The Clinical Scholarship Task Force was first convened in 1996 to explore the concept of scholarship in practice and to promote the unity of clinical and academic settings. When nursing education first shifted from the hospital to the academic setting, the separation of pedagogy from practice was essential for developing the nursing profession as an intellectual endeavor. Now we have reached the era in which practice itself is a scholarly undertaking; theory and research are grounded in clinical phenomena and the old distinctions between clinician and academician are spurious, at best.

For the last two biennia, the task force has met regularly to deliberate the various dimensions of clinical scholarship and the ways in which it can be promoted by Sigma Theta Tau. From the beginning, the task force operated less like a committee and more like a nursing think tank. Members shared their views on--and experiences with-- clinical scholarship, described nurses who functioned as clinical scholars, and identified barriers to scholarship in both academic and practice settings. Meetings took on a fervor that comes with examining one of the most fundamental objectives of intellectual activity in nursing – how to improve care and build the body of nursing knowledge, mutually reinforcing science and technology in the advancement of nursing practice.

The task force conceived this publication as a means of communicating its deliberations to the wider membership of Sigma Theta Tau and the profession. It is intended less as a definitive statement on clinical scholarship and more as a work-in-progress, inviting discussion, debate, new information and new technology, and inspiring ideas that will shape the direction of nursing practice. There are a number of omissions that we anticipate will appear in subsequent editions. For example, we would like to see a greater emphasis on nursing practice in both nonhospital environments and settings that do not have a strong teaching orientation. Nonetheless, it contains our best thinking about clinical scholars and scholarship, as well as the environments most conducive to advancing scholarship in the practice setting. You will find real examples of clinical scholarship as they occurred in Baystate Medical Center in Massachusetts, the University of Texas Medical Branch, Kaiser Permanente and California Pacific Medical Center, and the University of Iowa Hospitals and Clinics and College of Nursing. It also explores vehicles for advancing clinical scholarship (Clinical Scholars Mentor Program, Clinical Fellowships, celebrations of clinical scholarship, etc.) and, last, it provides a brief but exceptional bibliography that we believe will be a useful start for students, clinicians, educators and administrators as they begin their exploration of clinical scholarship.

At the end of the volume, we pose questions about clinical scholarship. They are intended to stimulate discussion in Sigma Theta Tau chapters, in departments, schools and colleges of nursing, hospitals, home health and long term care facilities, public health agencies, primary care clinics, school and occupational health settings or any one of the myriad of environments in which nurses practice. Our goal is to sensitize the nursing community to the importance of clinical scholarship. We thus offer this volume to stimulate ideas and activity among practitioners, educators and administrators. We welcome your responses.

Sigma Theta Tau International
Clinical Scholarship Task Force

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Descriptions of: Clinical Scholars, Clinical Scholarship and The Context In Which Clinical Scholarship Will flourish

Adopted by the Sigma Theta Tau International Board of Directors, February 13, 1999

Clinical Scholars

Clinical scholars are characterized by a high level of curiosity, critical thinking, continuous learning, reflection and the ability to seek and use a spectrum of resources and evidence to improve effectiveness of clinical interventions. They consistently bring a spirit of inquiry and creativity to their practice to solve clinical problems and improve outcomes. As clinical scholars mature, they assume an active role in creating and perpetuating an environment in which clinical scholars will grow in sharing the results of their work with the nursing community.

Clinical Scholarship

Clinical Scholarship is an approach that enables evidence-based nursing and development of best practices to meet the needs of clients efficiently and effectively. It requires the identification of desired outcomes; the use of systematic observation and scientifically-based methods to identify and solve clinical problems; the substantiation of practice and clinical decisions with reference to scientific principles, current research, consensus-based guidelines, quality improvement data and other forms of evidence; the evaluation, documentation and dissemination of outcomes and improvements in practice through a variety of mechanisms including publication, presentations, consultation and leadership; and the use of clinical knowledge and expertise to anticipate trends, predict needs, create effective clinical products and services, and manage outcomes.

The Context of Clinical Scholarship

Since nursing is practiced within organizational settings such as hospitals, clinics and schools, the degree to which clinical scholarship can emerge is related to specific features of these settings. Although clinical scholarship is not dependent on any one characteristic of the environment, it is likely to flourish in a context that includes many of the following features:

- where the administration understands the importance of clinical scholarship and supports it;
- where creativity, questioning, innovation are promoted and valued;
- where the improvement of clinical outcomes and efficiency are expected, encouraged and rewarded;
- where there are consistent and accessible vehicles for disseminating innovations and outcomes of clinical scholarship and for exposure to the clinical scholarship of colleagues;
- where evidence-based practice and the application of new knowledge are institutional expectations;
- where there are mechanisms through which novice scholars work with senior scholars who serve as role models, mentors, and consultants;
- where resources, including time, technology, and access to knowledge are accessible in the clinical environment;
- where there is mutual respect and collaboration between nurses and professionals in related disciplines; and
- where linkages with academic nursing are established so that clinicians and academicians can work together to improve patient outcomes.

Clinical Scholarship Exemplar: The University of Iowa

Rose Marie Friedrich, RN, MSN
Melanie Dreher, RN, PhD, FAAN

In the medical profession, clinical fellowships have been used extensively to prepare physicians in new and specialized areas of clinical practice. Fellowship programs create a scholarly ambiance in the practice setting where clinician-scholars advance medical science and technology as well as clinical practice. In nursing, however, in spite of the profound and rapid change that has taken place in clinical practice, clinical fellowship programs are relatively rare. New clinical technology and knowledge in nursing generally have been imparted through specific in-service and continuing education programs. While these strategies have been widely and successfully used to promote clinical proficiency, they do not necessarily promote clinical scholarship, which stresses identification of outcomes, systematic inquiry and an evidence-based approach to practice, as opposed to practice based on tradition and ritual. Clinical fellowships provide an extended opportunity to acquire new clinical knowledge but also to enhance clinical decision making and participate in the improvement of patient outcomes.

In order to explore the value of the clinical fellowship for promoting nursing scholarship and clinical practice, the University of Iowa Hospitals and Clinics (UIHC) and the College of Nursing initiated the Clinical Fellows Program. The program has two compelling objectives. One is to expose nursing educators to the most recent trends in clinical management and thus improve the quality of clinical instruction. The other is to promote scholarly inquiry in nursing practice to solve clinical problems and improve patient outcomes. In the example given below by clinical fellow, Professor Rose Marie Friedrich, the goals of enhancing education of the faculty and students while improving patient outcomes were mutually reinforcing.

To begin, over the past 25 years, there have been major advances in the pharmacological management of schizophrenia, as well as societal shifts in social policy that promote the non-institutional care of patients. As a result, most people with schizophrenia now remain in the community and are hospitalized only during acute episodes. The goals of institutional care have shifted from long term therapy and gradual re-entry to the community to stabilization with an abbreviated time frame to hasten discharge. The undesired consequences of this shift include medication noncompliance, illness relapse, frequent re-hospitalization and an overall poor quality of life. In addition, these changes in clinical practice as well as changes in reimbursement structure have transferred the burden of care from institutions to patients' families and communities. In Iowa about 60% of persons with mental illness live with their families. Nationwide, from 49% to 66% of persons with mental illness return to families after hospitalization. While managed care increasingly restricts in-patient services, very few resources are available to persons with schizophrenia in the community. Thus patients return to their families much sicker than previously and most families are not prepared to assume the care-giving responsibilities that are expected of them. Nor are institution-based staff adequately prepared for more family-oriented intervention.

These changes in the treatment and financing of schizophrenia mandate changes in psychiatric/mental health education in nursing. In addition to undergraduate students, master's students preparing for advanced practice careers in mental health must understand these changes in clinical management, including the latest pharmacological protocols. In order to increase her effectiveness in a community-based undergraduate curriculum and in a newly-instituted psychiatric/mental health nurse practitioner program, Professor Friedrich used the clinical fellowship to advance her clinical knowledge and practice. At the same time, the clinical

fellowship described below provided an opportunity for the hospital-based staff to receive consultation from Professor Friedrich, who has an extensive record of scholarship and experience related to the impact of schizophrenia on families.

A Clinical Fellowship in Neurobiological Nursing: A Catalyst for Scholarship

Rose Marie Friedrich, RN, MSN

After receiving a letter of appointment as a clinical fellow, I received a two week orientation to the neurobiological medicine unit and then joined the interdisciplinary team for at least one day each week throughout the academic year. I had many years of experience in guiding students during their clinical practica in psychiatric nursing, as well as an extensive record of scholarship on the impact of mental illness on families. Now, I had the opportunity to be a "learner" and become well versed in the current clinical management of persons with schizophrenia. As a clinical fellow, I worked closely with an interdisciplinary team of master clinicians to inform and expand my practice. I wanted to update my clinical knowledge and practice so that I could provide the most effective instruction to both undergraduate and graduate students. Since the majority of patients would return to their families after discharge, our goal was to determine ways in which the family members could be better prepared to receive their family member and achieve desired outcomes. Together, the staff and I identified the desired outcomes of greater medication compliance, reduced re-admissions, and an increased ability of the family to cope with the illness. My fellowship responsibilities thus included working directly with both families and staff to identify ways in which the clinical team could more effectively engage family members in the management of care.

Over a period of months, I educated and nurtured families by developing individualized bibliographies, supporting family members during electro-convulsive treatments, easing the transition from the hospital by helping families to access community resources as well as consulting with staff about families that were, themselves, depressed and angry. Specific work with staff included informal teaching about the needs of families. Sometimes this occurred during the morning report to the interdisciplinary team; other times it occurred when I would talk with staff one-to-one about a particular patient. The grief model of adaptation to severe mental illness was valuable in helping the staff to understand family behaviors toward the staff that often ranged from depression to anger.

Initially, I assessed the educational materials that were available on the unit as well as in the UIHC library for patients and families. Since they were minimal, I assisted the nursing staff in applying for a small grant to purchase books and videotapes from the local chapter of the National Alliance for the Mentally Ill. My major role in the application was to develop a list of references for a unit library that would be useful to educate and prepare families to receive a family member with schizophrenia.

In addition to serving as a role model and consultant to the staff in family management, I met routinely with the team to discuss the significance of family members and the ways in which they could be included in the plan of care. Together we explored the "evidence," drawn from the literature, from known clinical practices in other facilities, and from experience and observations on the unit. The ideas that were reviewed and discussed in these sessions subsequently were incorporated into a psycho-educational family intervention. The literature identified studies that had, in fact, tested a number of family interventions but these tended to be of a long duration, require significant staff involvement and were not cost-effective. Studies

involving hospital to home transition drawn from the neonatal and geriatric literature, however, suggested that the inclusion of families in the treatment plan would reduce the negative consequences of rapid discharge on both the family and the member with the illness. The evidence suggested that phone calls and modest follow-up can reduce costs, complications, re-admissions and create better management of the illness. From this body of evidence, we discussed possible interventions such as using the grief model to assist families adapt to loss, connecting families to other families with similar experience, and communicating with families post-discharge through follow-up phone calls.

Approximately six months into the fellowship, we decided to disseminate our clinical intervention and outcomes. To our knowledge, there were no hospitals in Iowa that provided a comprehensive psycho-educational intervention for families. If an evaluation of the intervention revealed that inclusion of families in the management of care during hospitalization improved the patient's quality of life, reduced recidivism, and lowered cost, we believed it would be useful in other settings. There was a high level of investment and enthusiasm for a systematic evaluation of the intervention among the team members, including the clinical staff, the nurse manager, and the psychiatrists.

The evaluation of the intervention was funded by an intramural trust fund and currently is being carried out on the unit described above. Thus my role on that unit has continued beyond the original fellowship and now includes the implementation and evaluation of the project. The study will evaluate the outcomes of families who receive the psycho-educational intervention by comparing them with those who have the traditional relationship with staff on the unit. Outcomes include the effect on family members' knowledge of schizophrenia, satisfaction with health care services, coping behavior, levels of psychological distress and ultimately, the reduction of medication noncompliance and re-hospitalization.

Often, faculty members are removed from the everyday experiences and problems of clinicians and clinical management and issues of credibility arise in the preparation of students. The faculty member may be seen by the staff as uninformed and unrealistic in their goals, thus undermining student confidence. Clinicians, on the other hand, may be so mired in the day-to-day problems of getting the work done, that it is difficult to engage in an evidence based practice and identify patient outcomes. Thus, the lack of real world experience by the faculty member and difficulty in applying the process of inquiry by clinicians impede progress in resolving clinical problems, advancing nursing science and technology, and improving education. In the clinical fellowship described above, the faculty member, as a clinical fellow, had the opportunity to become the learner as well as the consultant. The clinical fellowship thus establishes an ambiance of learning and exploration in which clinical scholarship can flourish.

In this clinical fellowship, the goals of the college were consistent with the goals of the UIHC and it was mutually initiated with the support of the chief nursing officer and the dean. The primary goals were (1) for the clinical fellow to acquire knowledge and expertise to improve instruction and (2) for the clinician team to acquire consultation on family-centered care in a schizophrenic population. Thus the college benefited by faculty member who was better prepared to teach in a new nurse practitioner program; the hospital benefited by developing a cost-effective intervention in managing the care of patients with schizophrenia. It is possible, of course, to initiate a clinical fellowship from either the practice or the academic community, depending on the specific needs. The program creates an academic ambiance in the practice setting and provides a vehicle for clinicians as well as faculty members, who may not be oriented to or prepared to conduct research, to express their scholarship.

Research fellowships are now part of the professional nursing argot while clinical fellowships remain relatively uncommon. While both foster inquiry and intellectual curiosity, research focuses on explanation and theory building, while clinical scholarship is focused on clinical problem solving. Nonetheless, this example demonstrates how clinical scholarship is not only informed by research but actually can lead to research as nursing technology and nursing scholarship are mutually reinforcing.

Clinical Scholarship Exemplar: The University of Texas Medical Branch

Suzanne Prevost, RN, PhD,CNAA
Cheryl Lehman, RN, MSN

In 1993 the hospitals of the University of Texas Medical Branch established a Department of Outcomes Evaluation. Nurses employed in this department developed a model and a process to continuously improve quality of care, cost effectiveness and customer service (Stonestreet & Prevost, 1997). For 6 years, the model has evolved and has been applied to a variety of clinical issues from pressure ulcers to pain management to staff satisfaction. These nurses and their work exemplify the people and the process of clinical scholarship. The following case illustrates the work of one clinical scholar.

Cheryl Lehman: A Clinical Scholar in Pursuit of Quality and Cost-Effectiveness

Cheryl Lehman, a rehabilitation clinical nurse specialist, was hired into the Outcomes Evaluation Department upon graduation from her master's program. Cheryl had several years of experience as a staff nurse, preceptor, and clinical educator in various rehabilitation settings. She eagerly accepted her new role and the challenge to develop and implement a hospital-wide program to reduce morbidity and costs associated with pressure ulcers. She started by assembling an interdepartmental Skin Care Team and leading them in conducting research to document the baseline incidence and prevalence of nosocomial pressure ulcers in the institution.

Under Cheryl's direction, the team used their research findings, a comprehensive literature review, and resources from professional organizations and the Agency for Health Care Policy and Research (AHCPR, 1992) to design research-based policies, procedures, and protocols for the prevention and treatment of pressure ulcers. Some of the changes in pressure ulcer care included: incorporation of the Braden Scale (a validated pressure ulcer risk assessment tool) into the nursing admission assessment, development and implementation of algorithms and decision trees for prevention and treatment interventions, identification of pressure ulcer experts and implementation of a nurse-to-nurse consultation process, preparation and distribution of skin care manuals for each nursing unit, and modifications to nursing documentation forms. Cheryl also played a leadership role as nurses in this institution participated in regional and national benchmarking projects, in collaboration with other academic medical centers, to determine best practices in pressure ulcer prevention and treatment.

Another step in this change process was the evaluation of supplies and devices used for pressure ulcer care. Everything from hospital mattresses, to low air loss beds, to incontinence pads, and wound care supplies were critically examined. Cheryl led the team in data-based decision-making by reviewing the research base for each product, as well as the ease of use, and cost-effectiveness. She successfully negotiated with vendors for discounted pricing on some high volume items, and she negotiated donations of free supplies for indigent patients. Simultaneously, she applied her knowledge of information systems to design and implement instruments and processes to track patients at risk for pressure ulcers, the interventions they were receiving, and the associated costs. Through the application of this system, Cheryl detected several incidences where the hospital had been over-billed by vendors supplying pressure ulcer products.

Then Cheryl directed her focus toward education. She collaborated with nurse educators and other members of the Skin Care Team to design a creative and comprehensive educational program explaining the rationale and processes for the new pressure ulcer protocols. She prepared and presented individualized classes for physicians, nurses, and unlicensed staff. Due to the size, diversity, and turnover of staff in this university system, Cheryl and her partners repeated the offerings numerous times, and reinforced the didactic content with bedside consultation and role modeling. She also guided members of the team in developing patient and family educational resources to promote skin integrity.

After a year of aggressive education, the team replicated the pressure ulcer incidence and prevalence studies, and demonstrated significant improvements in both. Prevalence decreased from 13.7% to 10.5% and the incidence of nosocomial ulcers dropped from 11% to 5.2%. Likewise, actual expenditures for specialty beds and other pressure ulcer products dropped by more than $100,000 in one year. Cheryl and her team shared these results through a variety of mechanisms. The outcomes and implications were published in the staff newsletter, and were presented at nursing management meetings and medical staff meetings. Then Cheryl and other team members shared their results through regional and national conferences and publications, and provided consultation to nurses in other settings (Prevost & Lehman, 1996, Prevost, 1998, Stonestreet & Prevost, 1997).

Nurses at the University of Texas Medical Branch replicated the pressure ulcer prevalence study annually for five years. The prevalence rate continued to decrease each year. After the fifth year, this outcome measure was incorporated into a quarterly quality improvement program based on the American Nurses Association Report Card for Acute Care. (ANA, 1995).

Throughout all of these experiences, Cheryl drew upon her expert clinical knowledge, her knowledge of the research literature and research processes, her knowledge of information systems, and her interpersonal and political skills. She collaborated and negotiated with nurse clinicians and nurse researchers, physicians, other health care providers, administrators, vendors, and patients to build consensus, introduce changes, and demonstrate improvements. She also applied her knowledge of complex systems and the change process to recommend creative strategies for facilitating the changes in practice.

In 1996, Cheryl was appointed to a new position wherein she managed a group of clinical scholars. Some of these nurses were prepared at the masters' level, some at the baccalaureate level. Cheryl and her colleagues designed an automated tracking mechanism to document the interventions, clinical outcomes, and cost savings accomplished by these individuals and the group. After a very productive year in management, Cheryl elected to return to a clinical nurse specialist role, believing that she could make her greatest contributions through daily interactions with patients and staff.

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Clinical Scholarship Exemplar: The Baystate Medical Center

Cheryl B. Stetler, RN, PhD, FAAN

The nursing division at Baystate Medical Center (BMC) in western Massachusetts, under the leadership of our former VP of Nursing, Mary Brunell, MS, RN, established a vision of evidence-based nursing for professional practice. It encompassed Henderson's definition of nursing[1]; a primary nursing model[2]; a group of clinical nurse specialists; and a mission built around both critical thinking and healthy patients and families. More recently, it was recognized that to succeed, such a vision must be grounded in a supportive culture[3] of clinical scholarship.

Evidence-based practice is defined as an approach to nursing that de-emphasizes ritual, isolated and unsystematic clinical experiences, ungrounded opinions and tradition as a basis for nursing practices. Rather, it stresses use of research findings as well as other sources of credible facts, information, or data[4]. These other sources include reliable, verifiable data from quality improvement, operational and evaluation projects; consensus of recognized experts; and affirmed clinical experience[5].

Inclusion of affirmed experience recognizes the importance of documented observations regarding patients' goal-related progress that should be routinely affirmed as valid and reliable by fellow clinicians. It also recognizes the value of shared reflections on practice and experience. Simply accepting one's self-perception of an experience, or, as Diers' suggests, "simply feeling, or intuiting, is not scholarship without informed, intelligent and clinically grounded analysis"[6] within, we would add, the context of available internal or external evidence. These reflections can be developed formally through written clinical narratives[7]. They also, however, can occur in daily interactions in which experience is externalized, reviewed and clarified.

Refection, self-scrutiny[8] and subsequent dialogue forms can thus form the basis for personal growth and mutual learning among peers. They often enable exploration of the "art" of nursing, that includes establishing caring, empathic relationships; grasping meaning in patient encounters; practicing morally and as a patient advocate[9]; and, akin to evidence-based practice, rationally determining appropriate courses of action. In summary, evidence-based practice is contrasted with "task-oriented practice." The latter practice is routinized versus deliberate, mindless versus rational, habitual versus individualized, and unquestioning versus evaluative.

A culture supportive of evidence-based practice is that of clinical scholarship, wherein the corporate environment promotes, values and concretely supports a maturational process of integrating knowledge/ evidence and clinical experience to achieve excellence in nursing practice. Such a culture makes known its values; enhances the capacity of individuals to move in

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[1] Henderson, V. (1961). Basic principles of nursing care. London: ICN.
[2] Manthey, M. (1980). The practice of primary nursing. Boston: Blackwell Scientific Publications, Inc.
[3] A corporate culture, or "the way we do things here," consists of common beliefs, values & assumptions which shape institutional behavior & set norms. A culture is visible through an organization's values and philosophy, managerial behavior, polices & procedures, day-day staff behavior, committee agendas, organizational priorities and recognition & rewards (AONE).
[4] Stetler, C., Brunell, M., Giuliano, K., Morsi, D., Prince, L., & Newell-Stokes, G. (1998). Evidence-Based Practice and the Role of Nursing Leadership. Journal of Nursing Administration, 28(7/8), 45-53.
[5] Ibid.
[6] Diers, D. (1995). Clinical scholorship. Journal of Professional Nursing, 11/1, 24-30.
[7] .BennerP. (1984). From novice to expert: Excellence and power in clinical nursing practice. Menlo Park, CA: Addison-Wesley.
[8] Diers, op cit
[9] Johnson, J. (1994). A dialectical examination of nursing art. Advances in Nursing Science, 17(1), 1-14.

the desired direction; and reinforces desired attitudes, competencies and behaviors through adaptation of routine structures and systems[10]. These desired attributes, as described in this monograph's overview, include a high level of curiosity, critical thinking, continuous learning, reflective practice, and an ability to seek/use a spectrum of inter-disciplinary resources and evidence to improve effectiveness of clinical interventions. They also include data-based decision-making; access and synthesis of new knowledge; and the use of innovations to improve practice and clinical outcomes (Clinical Scholarship Task Force, Sigma Theta Tau International, 1999).

The following exemplars, written as clinical narratives, describe the activities of "clinical scholars" at BMC. In one case, the scholar is an individual clinical nurse specialist (CNS), in another it is a group with staff members at various maturational stages led by a CNS. Each illustrates the attitudes, competencies and behaviors required of a young or mature clinical scholar. Critical to the success of both was a supportive environment which valued and encouraged their efforts, enhanced their capacity to change through provision of needed resources, and formalized their efforts into the infrastructure of nursing practice[11]. In both cases, it is evident that nurses as well as patients benefited from these collective efforts.

[10] Op cit, Stetler.
[11] Beatty, R., Ulrich, D. (1991). Re-energizing the mature organization. Organizational Dynamics, 20(1), 16-30.

Clinical Scholarship Exemplar for an Advanced Practice Nurse
Susan L. W. Krupnick MSN, RN, CARN, CS
Psychiatric Liaison Nurse Specialist

I have been a psychiatric consultation liaison nurse specialist (PCLN) for eighteen years, since my graduation from the psychiatric clinical nurse specialist program at the University of Pennsylvania. In my role as a PCLN in both academic and community medical centers, one of my primary concerns has been the lack of knowledge that I have seen in both nurses and physicians caring for the patient with a concurrent substance abuse problem, especially in the acute care environment. For example, during my practice in one former medical center, it was clear that the acute care patients with unidentified alcohol withdrawal syndrome (AWS) were at significant risk for harm due to this lack of knowledge; and in turn, nurses caring for them were at risk. During the interview process at my current medical center, questions and scenarios to which nurses asked me to respond generally involved a patient's substance abuse problems. As I practiced in this setting, it became apparent that nurses were troubled by treatments of patients experiencing AWS; again, up-to-date caregiver knowledge approved to be a factor.

Upon my arrival at Baystate Medical Center in October 1995, I was asked to assist in addressing the problem of improving care for this special and growing population of patients at risk for developing alcohol withdrawal syndrome. Specifically, I was asked to co-lead a quality improvement initiative and to focus clinical consultation on related problems. This was the first time that I had worked in a healthcare environment that was willing to commit resources to actually assess the level of risk that these patients pose to both themselves and to the system when not identified and treated in a focused and individualized manner. My interest in this clinical problem had spanned almost my entire nursing career. Now, I was finally going to have the opportunity to have direct impact on changing nursing and medical practices to benefit patients and the healthcare system.

One of my first steps in addressing this issue was to use my national networking contacts to obtain new information from the addiction field for use in this acute care environment. For example, I had been a part of a related work group within the National Nurses Society on Addictions (NNSA) and had numerous international connections through my work with the International Society of Psychiatric Consultation Liaison Nurses (ISPCLN). I used contacts to discover new research, unpublished work and lessons learned by other experts working in academic medical centers. Thus, I would update my own knowledge in this evolving field, and enhance the work of the quality improvement team through providing information on others' success. The next immediate step was to conduct a chart review audit with team members during a dinner retreat sponsored by the nursing division. The goal was to obtain evidence to validate the extent and better understand the nature of the problem in this setting so that we could focus our efforts.

As part of the Quality Improvement design phase, the QI team members conducted a thorough literature search for assessment tools. Our interdisciplinary contacts proved fruitful and decreased some of our searching and work time. For example, we were able to obtain reports of outcomes of projects initiated in other organizations as well as unpublished information on the reliability and validity of two specific assessment tools. The first tool was needed to screen the patient for substance abuse. The current method of assessment was haphazard and typically reported social use or significant drinking without any quantification

for the amount of alcohol or other substance ingested. The CAGE assessment tool[1] was selected after review of relevant criteria which team members had agreed upon. Specifically, we wanted to be certain that the tool was user friendly, but it had to have been used and demonstrated to be valid and reliable for use with medical-surgical patients. Although other available tools provided more clinical information, they were not as easy to incorporate and use at the time of admission of the patient as the CAGE, which met all of our criteria. One step that I took in this decision making process was to evaluate the CAGE based on criteria for assessing the applicability of research findings for practice.[2]

The second assessment tool was needed for identification of the stage of patients' alcohol withdrawal based on concrete and observable symptoms. I had previously used the Clinical Institute Withdrawal Assessment-Alcohol-revised scale (CIWA-Ar)[3] in my practice as a critical care nurse, but I wanted to search out any comparative tools that might have been developed specifically for medically ill patients. So again I turned to the literature and research colleagues at major academic addiction research centers in the US, United Kingdom and Canada. After reviewing new tools that were created within critical care environments or modified from the CIWA-Ar, discussion with team members, and consultation with another PCLN in the midst of implementing the CIWA-Ar on similar medical units, it was decided to select the CIWA-Ar scale to quantify AWS. However, based on evaluation of this tool using our criteria for assessing the applicability of research findings for practice, we recognized that it was not as well substantiated as the CAGE. We decided to use it because it fit our needs, but we planned to pilot it to assess whether it provided expected data. A meta-analysis[4] of pharmacologic treatment of AWS provided further substantiation for our guideline recommendations about screening and assessing AWS.

The next step in the process was development of a treatment guideline to individualize sedation management of patients experiencing AWS. Once again, a review of research was conducted, and an intense discussion ensued about the often-conflicting information regarding how much medication and which benzodiazepine agent would be best for the medically ill patient. Data from our medical record review had informed us of the predominant current, and less desirable from a scientific view, treatment choices of physicians. I continuously focused the group on the level of evidence that was available to facilitate an appropriate choice for the guideline ... and one that could be supported by science when it was disseminated. My medical colleagues reminded me that in the process of change, incrementalism[5] is at times more effective and that our initial choice of dosage could be piloted to obtain evidence to make further change.

For implementation, I collaborated with the clinical director, a nurse manager, and CNS from medicine to obtain their support for a pilot test on a general medical unit. I provided classes for nurses, as well as on-unit consultation and precepting. In turn, I worked with both the nursing and medical staff to understand their concerns about the symptom-triggered sedation management model. After the month-long pilot, we collected formal and informal feedback from

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[1] Bush, D. Shaw, S., Clearly, P., et al. (1987). Screening for alcohol abuse using the CAGE questionnaire. The American Journal of Medicine, 82, 231-235.

[2] Stetler C. (1994). Refinement of the Stetler/Marram model for application of research findings to practice. Nursing Outlook, 42, 15-25.

[3] Sullivan, J., Sykora, K., Schneiderman, J., Naranjo, C., & Sellers, E. (1989). Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar). British Journal of Addictions, 84, 1353-1357.

[4] Mayo-Smith, M. (1997). Pharmacological management of alcohol withdrawal: a meta-analysis & evidence-based guideline. Journal of the American Medical Association, 278, 144-157.

[5] Cook, D., Guyatt, G., Laupacis, A., & Sackett, D. (1992). Rules of evidence and clinical recommendations on the use of antithrombotic agents. Chest, 102, 3055-3115.

staff and again reviewed charts. Based on this internal evidence, the QI team revised the guideline to decrease the level of monitoring while increasing the initial dose of medication that patients would receive. One major concern that was frequently articulated actually revealed a need for additional knowledge about physiological tolerance. I then worked shoulder to shoulder with nurses to demonstrate the model and its outcome, that is, how individualized benzodiazepine replacement for alcohol does not usually lead to over-sedation. Several reinforcement sessions helped me to increase the nurses' confidence that they were practicing safely and not placing the patient in a potentially harmful situation. By discussing the inter-rater reliability between my scores and those of a staff nurse, I was able to role model critical thinking about important differentiations in assessment. As the innovation moved forward, the QI team obtained support, because of nursing and medicine leadership's value for evidence-based practice, for inclusion of the CAGE in a redesigned admission assessment form – despite the initial reaction of some nurses that such questions were unnecessary and even intrusive.

I believe that having the Nurse Specialist in Evidence-Based Practice within the Division of Nursing has been a significant contribution for an organization that wants to move practice from "it's the way we do it here" to practice based on clinical research outcomes and internal evaluative evidence. The ability for me to collaborate with this specialist when I became concerned about a conflicting research finding or how best to encourage early adopters to assist their colleagues in this evidence-based practice change was a support for me as I am developing my clinical scholarship skills. Additionally, this specialist assisted me to stay focused on the need to communicate this information and outcomes within the professional community. Presently, I am collaborating with the psychiatric consultation physician in writing an article describing both the process and the clinical outcomes of this project. The initial pilot outcomes and project process also have been presented at local schools of nursing and at the American Academy of Psychosomatic Medicine, at the American Society of Addiction Medicine and the American Nurses' Association annual convention.

In summary, the use of evidence-based practice has increased nurse and physician knowledge related to alcohol withdrawal syndrome and implemented a focused method of assessment and treatment that is preventing stage 3 withdrawal. This use of clinical research and QI evidence, as well as my continuous curiosity, has helped me to further develop my own practice while helping to improve care in this critical area.

Clinical Scholarship Exemplar at a Group Level
Fall Prevention Interest Group
Barbara Corrigan, MSN, RN
Geriatric Clinical Nurse Specialist

In April of 1996 upon beginning my role as a new geriatric clinical specialist, I was assigned leadership of a group composed of staff nurses committed to reducing falls in the institution. These nurses were part of a team that previously had implemented a fall prevention program after hearing from an external consultant, who shared the experience of another acute care setting. As a result, a number of steps were taken e.g., a list of possible risk factors to be assessed at the time of admission was disseminated to units, and a limited number of alarms purchased.

Although the group had a clear goal in mind and sought an expert resource for assistance, the traditional paradigm which they used for problem solving did not include a conceptual framework for change or a scientific basis for fall prevention. They chose innovations primarily through group consensus and distributed alarms to selected units based on their assumption that falls were more of a problem on those units. Periodic random quality improvement audits were being conducted but resultant data were not provided to nursing staff nor meaningfully presented to the unit's manager. At the time I entered the group, members assumed that all was well with fall prevention and indeed could point to positive changes that had been made such as the successful use of no-skid stockings and decals which were placed outside the patient's room. However, members recognized that not all staff were paying attention to the recommended strategies; and the group was discouraged but curious when I informed them of the number of falls and major injuries from falls had increased in recent months. Administration thus identified falls as a formal performance improvement initiative and continued to support staff nurses' attendance at the Fall Prevention Interest Group, despite budget constrictions on staff availability for such activities. Using the Juran Institute Quality Improvement process, a multidisciplinary team including many of the original group of nurses, met weekly to develop a refined fall prevention program.

Simultaneous to my assignment as leader of the prevention group was my introduction to the concept of evidence, with top administrative support for a new way of thinking about practice. The following strategies supported that initiative:

- *A specialist in evidence-based practice was hired, who mentored and taught a group of us how to conduct an integrated review of the literature and to assess the applicability of research findings and the research process to daily practice.*
- *A close affiliation with local university schools of nursing was established to provide evidence-based experiences for graduate nursing students.*
- *Internal grant funds were made available to support systematic program evaluations.*
- *A framework for thinking about evidence and its role in practice was developed, widely disseminated within the department, and tied to our goal to improve critical thinking in daily clinical practice.*

To integrate this new approach into the fall prevention program, two types of evidence were needed: a) evaluative evidence regarding our current practice, as well as usefulness of any innovations we implemented; and b) scientific evidence for selection of a fall risk tool and preventive interventions. A positive attitude toward such evidence and a process for continuous learning would be needed of group members. I also found that this new approach required a shift in my own thinking. For example, instead of doing a quick survey of the literature and

choosing a tool or intervention that "looked good," I had to consider what it meant to truly achieve evidence-based practice. This is something I had not learned in graduate school, but I found it reassuring to think that the time and energy I was putting into this would more likely pay off if it were evidence-based.

The initial group, as I noted above, had not reviewed the research literature systematically for tool selection; and a more cost-effective way of identifying high risk patients would be to choose a risk assessment tool with an acceptable level of sensitivity and specificity. Relevant research regarding such a tool was gathered and analyzed by a small group educated in use of the integrative review process.[6] *Once this was shared with group members – and they began to see the value of the risk tool in practice– they realized the importance of such scientific evidence and were proud of the fact that our tool had been so carefully selected. One member said, "The tool encourages us to focus our thinking on prevention, not just post-fall reactions." Members of the group became role models and advocates for use of the tool and were able to explain to their peers its value to their patients. In some cases, their language also began to change. Words like sensitivity and specificity, operational definitions and evidence were commonly used terms in our discussions. I felt proud to be leading this group of dedicated professionals.*

For interventions, again the initial group had not based their choice on systematically obtained evidence. Staff were seemingly "reacting" to individual issues with routine procedures: for example, when a patient had been given certain medications such as narcotics, side rails automatically were used, whether such a medication in reality created a high risk situation or not. Unlike selection of the tool, there was no sound body of scientific evidence to guide identification of risk-related preventive interventions. What did exist, however, were detailed operational definitions of each risk factor that we used to help the group brainstorm conceptually sound preventive actions. These would then be used in a context of continuous improvement. Tthat is, we would present these optional interventions for use by staff on a falls prevention tool and, as a group, monitor their usefulness. Through this process, group members could help to identify the pros and cons of certain innovations in selected patient situations. Critical thinking thus was encouraged among group members as well as staff, as sound nursing judgment would be essential when selecting interventions to meet individual risk-related needs. The presence of graduate students, who became ad hoc group members assigned to explore specific risk factors, provided additional evidence to the group for their consideration. For example, one graduate student raised the awareness of members regarding toileting schedules and another undertook evaluation of the advantages and disadvantages of different types of alarms for different patient situations.

Implementation of the overall program occurred in January 1998 when members of the Fall Prevention Interest Group, called Fall Reps, became actively involved in educating their own staff. One nurse noted that this implementation was more effective than other programs because the Reps were available as a resource who could assist with problem solving when identifying strategies … in turn, the Reps had expert advanced practice nurses or related graduate students as resources.

[6] Stetler, C., Morsi, D., Rucki, S., Broughton, S., Corrigan, B., Fitzgerald, J., Guiliano, K., Haverner, P., & Sheridan, E.A.(1998). Utilization –Focused Integrative Reviews in a Nursing Service. Applied Nursing Research, 11 (4), 195-206.

The other strategy that facilitated members' value for evidence-based practice and growth in critical thinking was the continual use of evaluative evidence. Evaluation[7] was begun soon after implementation with the purpose of a) assessing the use and usefulness of program components and b) providing concrete feedback to staff and project leaders for continuous improvement. Specifically, data were collected on our educational strategies; staff perceptions regarding the Fall Prevention Program innovations; staff's skill, as well as performance regarding accurate risk assessment; and staff's skill, as well as performance regarding both appropriate selection and implementation of interventions. After data were shared with the Reps, they brought this back to their staff for discussion. Staff looked forward to the quarterly posting of new data on a unit-specific poster. One Rep said that "data from reports provide a kickoff for problem solving." It also gave them "confidence." One nurse said that "evidence-based programs make them credible." Another nurse commented, "This is one of the best changes implemented since I've been here. It is constantly being re-evaluated."

The enthusiasm of the Reps was transferred to the staff. One Rep said that there is a lot more talking about fall risk factors among staff and a "heightened awareness." Staff now welcomed investigation of a fall by the nurse manager or Rep because as one nurse put it, "we learn from the investigation." Prior to this they felt like they had done something wrong if the patient fell; now they wanted to know where it went wrong and how they could improve it. Staff were increasingly engaged in reflective practice by using data from each fall as a learning tool to change practice. The value of the Rep in this process was also re-enforced by nurse managers. For example, one Rep reported how she was given time by her manager to round and do spot-checks and audits.

Although advanced practice nurses were critical to the success of this effort, it was the team collectively that made it effective. As described in a publication on the program,[8] not only were patient outcomes improved, but various members of the team exhibited growth in critical thinking, reflective practice, and use of evidence in practice. Some members were at a higher level of maturation at the beginning of the program than others but, more and more, I can see Fall Reps developing from novice to more senior scholars, highly respected by their peers. More work does remain to be done with individual staff, especially the more novice clinician; and long-term success of the program will depend on providing staff with on-going feedback to reinforce the shift from group ritual and routine fall prevention practice to day-to-day use of evidence.

The Fall Prevention Interest Group's effort has been recognized by the organization as it was nominated for the Safety Award three years in a row. Through two publications[9] and multiple national presentations, we have shared the related process and results. Most importantly, the success of this collective group of clinical scholars has served as a foundation for other initiatives. I am now leading a Restraint Reduction Program using the same conceptual framework and with many Fall Reps as members. These individuals maintain their confidence that what we are doing is credible and worthwhile. Their growing clinical scholarship will help make that assumption come true. I, in turn have grown to value the use of

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[7] Stetler, C., Corrigan, B., Sander-Buscemi, K., & Burns, M. (1999). Integration of Evidence into Practice and the Change Process: A Fall Prevention Program as a Model. Outcomes Management for Nursing Practice, 3 (3), 102-111.

[8] Ibid.

[9] Corrigan, B., Allen, K., Moore, J., Samra, P., Stetler, C., Thielen, J., & the NICHE Faculty. Fall Prevention in Acute Care. In: M. Bottrell, I. Abraham, M. Mezey, & T. Fulmer. (1999). Geriatric Nursing Protocols for Best Practice. New York: Springer Publishing Co.

evidence in every aspect of my work and have a greater confidence that the initiatives I am leading will have a positive outcome.

Clinical Scholarship Exemplar: The Kaiser Permanente and California Pacific Medical Center

Kerry M. Turley, MSN, MPA, RN, PNP
Clinical Nurse Coordinator, Pediatric Cardiovascular Surgery

In 1991 a pediatric heart surgery program was established between two metropolitan San Francisco hospitals, Kaiser Permanente San Francisco and California Pacific Medical Center. Each facility would have its own medical and nursing staff but the responsibility for coordinating the programs would be under the leadership of a Clinical Nurse Coordinator who would work at both institutions. I accepted that responsibility.

The goal was to have a pediatric heart surgery program with the most optimum outcomes yet function in a cost- effective and efficient manner. It was agreed to develop critical pathways for this select patient population. Prior to this pathways had only been used in heart surgery programs with homogeneous populations. Children and their congenital cardiac anomalies present a heterogeneous population making the development of pathways more difficult.

Initially, my task became the development of the nursing interventions for the critical pathway and their implementation. The fulfillment of these goals would encompass the close teamwork of the nursing administration, nurse managers, their staff, and myself. Previous research described the most common reason adult cardiac surgical patients had not met their desired pathway outcomes was that nurses did not implement their own interventions of ambulation and incentive spirometry.[1] These are two common yet important nursing interventions for surgical patients.

Nursing research has designated other considerations vital when developing criteria for nursing practice in pediatrics. The focus is how well have parents been incorporated in the participation of their child's care. [2,34,5] It is will recognized that achieving this parent/nursing partnership in a critical care setting has been a challenge [6] and the most recent studies suggest that parents should be involved in care beyond past accepted boundaries. [7] Finally, pain management in children is a recognized problem with under- medication common – a strategy to avoid this needed to be formulated. [8] Therefore, the following plan seemed to address a way for us to achieve excellent recovery from cardiac surgery and parental participation in critical pathways.

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[1] Strong, A.G., & Sneed, N.V. Clinical evaluation of a critical path for coronary artery bypass patients. Progressive Cardiovascular Nursing 6(1):29-37, 1991

[2] Miles, M.S., Carter, M.C., Spicher, C., & Hassanein, R.S. Maternal and paternal stress reactions when a child is hospitalized in a pediatric intensive care unit. Issues in Comprehensive Nursing, 7:333-42, 1984.

[3] La Montagne, L.L. Stress and coping of parents of children in a pediatric intensive care unit. Heart and Lung: Journal of Critical Care, 19(4):416-21, 1990

[4] Callery, P., & Smith, L. A study of role negotiations between nurses and the parent of hospitalized children. Journal of Advanced Nursing, 16(7):772-81, 1991.

[5] Perkins, M.T. Parent-nurse collaboration: using the caregiver identity emergence phases to assist parents of hospitalized children with disabilities. Journal of Pediatric Nursing, 8(1):2-9, 1993.

[6] Rushton, C.H. Family-centered care in the critical care setting: myth or reality? Children's Health Care, 19(2):68-78, 1990.

[7] Moynihan, P., Naclerio, L., & Kiley, K. Parent participation. Nursing Clinics of North America, 30(2):233, 1995

[8] Beyer JE., Wells N., The assessment of pain in children. Pediatric Clinic of North America. 1989, 36 (4): 837-853.

Parents and their children were trained pre-operatively in techniques for positioning, ambulation, incentive spirometry exercises, and pain management. A progress chart[9] was developed and hung at the bedside that allowed both parent and child to know when the next walk or spirometry exercise was due.

Medications, the route, amount and time they were to be administered were also listed on the chart to meet the parents' informational needs. This provided both parent and staff a visual of the child's care for each day. Pain medication was given on an around the clock basis rather than prn and allowed the children to be quite active in the recovery period, thus accelerating recovery time.[10]This system of around the clock pain medication was out of the ordinary for the staff nurses and parents could offer helpful reminders when they knew what time a dose of medication was suppose to be given. Nurses were always available to help the children with their activity tasks, such as ambulation, but parents understood pre-operatively that it would be their responsibility to carry out these tasks in the post-operative period.

As the Clinical Nurse Coordinator, I eventually became responsible for the organization, implementation, and evaluation of the pathways. This included all of the pre-operative and discharge teaching, assisting with discontinuation of chest tubes and all other monitoring lines, participating in the child's first walk post-operatively to role model for parents and staff, being available for consultation for families both pre- and post-operatively, and conducting research of patient outcomes and family satisfaction.

In our study we compared the actual length of stay (ALOS) to the expected length of stay (ELOS) of 151 consecutive children undergoing congenital heart surgery and found hospitalization had been reduced 1 to 1 1/2 days. Family satisfaction surveys were completed by all 151 parents with positive feedback regarding the child's hospital course and their ability to participate in their child's care.[11] Staff nurses reported a rise in job satisfaction when caring for this patient population as they claimed that their knowledge of the pathway plan as well as parents who knew what to expect allowed them more credibility and collegiality in their role with the family.

In summary, this research and evidence-based nursing practice afforded a system for incorporating parents into the nursing care of the child as an integral part of the health care team while simultaneously providing care that accelerated recovery from pediatric heart surgery. At a time when many fear that cost-containment lowers the level of patient care, this program empowers families and yields excellent outcomes, reflected in rapid recovery, shortened hospital days, and excellent family satisfaction.

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[9] Turley, K.M., Higgins, S.S., Archer-Duste, H., & Cafferty, P. Role of the clinical nurse coordinator in successful implementation of critical pathways in pediatric cardiovascular surgery patients. Progressive in Cardiovascular Nursing, 10(1):22-6, 1995

[10] Higgins, SS., Turley, KM.,Harr J., & Turley,K. Prescription and administration of around the clock analgesics in postoperative pediatric cardiovascular surgery patients. Progressive Cardiovascular Nursing, 14(1):19-24, 1998.

[11] Turley, KM., & Higgins SS., When parents participate in critical pathway management following pediatric cardiovascular surgery. MCN American Journal of Maternal Child Nursing. 1996;21 (5):229-234.

Clinical Scholars Mentor Program

(As proposed by the Clinical Scholarship Task Force and based on the work of Marita Titler, RN, PhD, FAAN)

Purpose

The purposes of this program are to:

- Create partnerships among clinical scholars and potential clinical scholars;
- Foster clinical scholarship in nursing;
- Acknowledge outstanding clinical scholars; and
- Promote innovations that improve patient care.

Description

This 12-month program for clinical scholarship pairs an identified clinical scholar (mentor) with a nurse in practice who exhibits potential for becoming a clinical scholar (fellow). The mentor and fellow select a health care issue, develop an innovation to address this issue, and work collaboratively to implement the innovation in a practice agency. Upon completion of the program, the mentor-fellow partners and their innovations are recognized at their regional conference. This experience may be underwritten financially via the Clinical Scholarship Grant.

Criteria

The following criteria are set forth to facilitate selection of the mentor and fellow. The Mentor is a registered nurse who is a member of Sigma Theta Tau International; is nominated to serve as a clinical scholarship mentor; and provides letters of support from their cooperating agencies to serve as a clinical scholar mentor. In addition, the mentor must exhibit evidence of scholarship that enhances patient care such as the following:

- Promotes creativity
- Fosters critical thinking
- Uses data for decision making
- Synthesizes knowledge to guide patient care
- Facilitates development and dissemination of innovations
- Provides leadership for clinical scholarship within their agency
- Role models the use of data and science to promote quality care
- Shares their experience of clinical scholarship through publications and presentations
- Provides consultation for some aspect of direct patient care and/or provides direct patient care

The Fellow is a registered nurse who:

- Is a member of Sigma Theta Tau International
- Provides direct patient care to individuals, families, or groups
- Outlines a practice innovation which addresses a health care issue

The Fellow provides a letter of support from their agency that outlines the potential leadership and clinical scholarship characteristics of the Fellow.

Application Process

Mentors for Clinical Scholars will submit an application that outlines their:

1. Areas of expertise

2. Example of clinical scholarship
3. Practice setting
4. Curriculum vitae
5. Letters of support

A call for mentor and fellow applications will be done yearly. Applications will be sent to the local Sigma Theta Tau International chapter. Mentors and fellows may be paired by local Sigma Theta Tau International chapters based on geographic location, mentors identified areas of expertise, and fellow's practice issues and objectives. Local chapters may consider a two-phase application process as follows:

Phase I: The mentor and fellow submit separate applications. Pairings are made by the Sigma Theta Tau International local chapter.

Phase II: The mentor works with the fellow to provide a plan that meets the fellow's objectives. This plan can then be submitted to local Sigma Theta Tau International chapter for funding via the Clinical Scholarship Grant funding process.

Outcomes

The outcomes of this program are:

1. Professional development of new clinical scholars
2. Presentations by mentor-fellow pairs at local, regional, and international conferences
3. Publications of the experiences in *Reflections*
4. Manuscript by mentor-fellow pair
5. National data base of clinical scholars
6. Products (e.g., new piece of equipment; research based practice protocol; new service developed to address identified clinical issues)

Clinical Scholarship and Sigma Theta Tau International

As the nursing organization that has dedicated itself to the promotion of scholarship in nursing, Sigma Theta Tau International is committed to clinical scholarship through the development and nourishment of clinical scholars and the provision of resources to support clinical scholarship. These include, for example:

- the celebration of clinical scholarship at chapter, regional, and international levels;
- the opportunity to present clinical scholarship in local, regional, and international meetings;
- a newsletter that features clinical scholars and their work around the globe;
- a journal in which the research results and their clinical applications are presented to the nursing community;
- opportunities for clinicians and academicians to interact and confer on specific clinical topics;
- mentoring programs for clinical scholars sponsored and organized at chapter, regional, and international levels; and
- the *Registry of Nursing Research* and *The Online Journal of Knowledge Synthesis for Nursing* which brings accumulated and developing knowledge to practicing clinicians on-line.
- expand *The Online Journal of Knowledge Synthesis for Nursing* to be of use for the practicing nurses.
- create a forum for non-academically based researchers, to identify the methodological, operational and ethical issues confronting clinical scholarship.
- promote the use of the Virginia Henderson International Nursing Library in practice as well as academic settings.
- create a Clinical Scholarship Colloquium Series convening leading scholars for discourse on selected clinical topics.
- re-visit research funding priorities to foster the development of clinical scholars.
- advance the theme of clinical scholarship in Regional Assembly programs, showcasing the application of nursing research in clinical practice, the various dimensions of clinical scholarship. What is it? How can Sigma Theta Tau encourage it?

Clinical scholarship reaffirms the most fundamental component of Sigma Theta Tau's mission, to use nursing knowledge to improve the health of people worldwide. It brings us nearer to the culture of our membership, the majority of whom are clinicians, and links us globally through shared interests in clinical phenomena. Finally, clinical scholarship is perhaps the most visible and easily understood contribution that the nursing profession can make to the public – the public to which we must communicate the value and the promise of nursing for the future of health care.

With Sigma Theta Tau chapters housed in universities and colleges and with the majority of its members in clinical practice, the society is well positioned to promote the scientific base of practice and advance clinical scholarship.

CLINICAL SCHOLARSHIP: NURSING PRACTICE AS AN INTELLECTUAL ENDEAVOR

Melanie C. Dreher, RN, PhD, FAAN

What is clinical scholarship?

Clinical scholarship is easier to describe than to define. First and foremost, it is based on the assumption that professional nursing is an intellectual endeavor, requiring clinical decision-making that is oriented to improving patient outcomes. Clinical scholarship is about inquiry and implies a willingness to scrutinize our practice, even if it means challenging the theories and procedures that we learned and practiced. It is looking for a different and better way to nurse and refusing to accept anything just because that's the way in which it always has been done.

The spirit of clinical scholarship often appears when the policies and procedures that govern our practice start to seem inadequate or unnecessary or when clinical evidence contradicts convention. We begin to question, why are we doing this? or why are we doing it this way? It also is present when we are confronted with a problem that we have not encountered previously and we find ourselves appealing to the literature, often to discover that there is little there to assist us.

Sometimes it is easier to say what clinical scholarship is not. Clinical scholarship is not clinical proficiency. Although they are related; performing a particular nursing procedure well does not make it scholarly unless we're questioning whether we need to perform it in the first place, or whether we can find a better way to accomplish the same objective.

Clinical scholarship also is not clinical research, although it is informed by and inspires research. Certainly one of the hallmarks of the clinical scholar is a reference to and reliance on current research to inform practice. But clinical scholars often cannot wait for all the research to be done before they begin the problem solving process. Clinical scholarship requires that we take some risks, perhaps experiment on a small scale and act on a hunch with just partial information. Reform and research seldom come at the same time. While research informs clinical practice, clinical practice informs research and it is highly likely that changes in clinical practice will generate inquiry, new knowledge and new theories. No one waited until all the evidence was in, for example, to initiate the nurse practitioner model of advanced practice. On the other hand, the establishment of nurse practitioners has inspired abundant research regarding their efficacy and efficiency. Shifts in practice, born out of special circumstances, have produced studies that confirm their value. We have now established, for example, from home health nurses who had to use non-sterile dressings, that in most cases, clean dressings can be used without untoward effects.

Clinical scholarship enhances our knowledge development also by testing the realities of clinical phenomena against many of the theories used by educators to guide practice. Maslow's hierarchy of needs theory, for example, takes on new complexity when working with patients in an emergency room when it is necessary to allay fear and apprehension in order to carry out life-saving procedures. Similarly, Erickson's developmental tasks are challenged when we try to apply them to clients and families of different cultures.

It is commonly thought that clinical scholarship is a product of maturity in the profession. Although observation and analysis can be sharpened by experience, maturity does not guarantee clinical scholarship. Indeed, we all have known those nurses for whom "ten years of experience actually is one year of experience ten times." While fledgling nurses may not have the benefit of

a vast experience on which to draw, they can appeal to the research literature and to the experience of their colleagues. It is thus possible for neophyte nurses to approach their work in a scholarly way, through strong observational skills, by discussing and comparing clinical phenomena with colleagues, and by reading the current literature.

Clinical scholarship is an intellectual process, grounded in curiosity about why our clients respond the way they do and why we, as nurses, do the things we do. It includes challenging traditional nursing interventions, testing our ideas, predicting outcomes and explaining both patterns and exceptions. In addition to observation, analysis, and synthesis, clinical scholarship includes application and dissemination, all of which result in a new understanding of nursing phenomena and the development of new knowledge.

Observing

Clinical scholarship is rooted in observation. It requires paying attention to the way in which clients respond – both to their problems and to their treatments. This is not always easy in nursing because the kind of phenomena with which nurses deal often are very subtle and veiled by other behavior. As nurses, we've always observed, but are we observing the correct things? The observations that we typically have documented often have been for the purpose of limiting liability rather than for improving patient outcomes. The emphasis on acuity, for example, as the primary indicator of need for nursing personnel resources in hospitals has tended to disregard the complex needs of patients who are about to be discharged or of those with impending procedures or hospitalization.

Analyzing

It is not enough just to observe phenomena; we also must interpret our observations by comparing them with similar phenomena (whether those comparisons are drawn from our own clinical experience or from the literature) and by contextualizing them. It is through such comparisons and contextualization that observations are identified as exceptional and worthy of our attention. It is their singularity that makes us wonder, marvel, question and then evaluate them in relation to the current thinking in the field. Comparative analysis is a process of looking for patterns and exceptions. It requires that we observe clients (individuals, families or communities) and events not just as singular encounters with unique characteristics but as one of the many encounters that comprise our practice. Equally important in analysis is a strong knowledge of the field. We cannot challenge the common assumptions regarding clinical phenomena if we do not know what those assumptions are. Knowledge derived from experience and from the literature serves as the backdrop for the creative leaps that lead to true clinical scholarship.

Synthesizing

Synthesis in clinical scholarship is the process of explaining – of attaching meaning to our observations and comparisons through reference to the literature. It builds on the analysis to create an understanding of why these patterns and/or exceptions exist. Clinical scholars look at phenomena in a thoughtful and deliberative way. Their expansive and in-depth knowledge of and exposure to particular clinical phenomena permit them to think creatively in their interpretation – often reversing traditional explanations.

Observations of women who are multiple drug users, for example, suggest the standard "gateway" or "stepping stone" hypotheses in which the use of a particular psychoactive substance creates a desire for a yet more powerful one. A closer examination, however, reveals that many women are, in fact, using substances to relieve the effects or actually diminish the need for

others. This notion of self-medicating stands in marked contrast to usual explanations centering on a more hedonistic escalation of effect. It also provides different opportunities for nursing intervention.

One of the ways in which clinical scholars generate an interpretation of their observations and comparisons is through the process of discussion with colleagues – both within the nursing community and with other disciplines and professions – crossing disciplinary boundaries in order to obtain a different perspective. The incorporation of other kinds of knowledge facilitates and enriches our explanations.

Applying and Disseminating

Clinical scholarship is about inquiry and explanation but, unlike research, it is also about application. It is concerned not only with how we apply the results of nursing research but also how we apply the results of our clinical inquiry. It requires not only a search for explanation but solving clinical problems. Clinical scholars both discover and apply knowledge. In clinical scholarship to know, and to not do, is to not know. To be considered true clinical scholars, nurses must identify and describe their work, making it conscious, so that it can be shared with researchers, colleagues, other health care providers and, perhaps most important, the public. One of the reasons that the public and even other health care providers do not really understand what we really do is that we have internalized it so much that we, ourselves, have difficulty articulating it.

In some respects clinical scholarship is like clinical research in its emphasis on inquiry, refutation, analysis, explanation and knowledge building. But the attributes of the clinical scholar are more difficult to teach and transmit than the scientific method; it really has to do with what I call the clinical scholar mind set. The inclusion of action and application in our description of clinical scholarship suggests that, in addition to intellectual curiosity and a breadth and depth of clinical knowledge, clinical scholars must have the attributes of a leader. They must be creative, courageous and even commanding. It takes courage to slay sacred cows, to put new ideas into action, to challenge and refute. In fact, it takes courage just to do something different. Clinical scholars often have to take risks and act on partial information. It requires feistiness and the willingness to try and fail. As an educator, I must confess that the attributes necessary to fulfill one's destiny as a clinical scholar - the risk-taking, audacity, irreverence, revolution, and even a sense of humor, are precisely the things that we may have discouraged in nursing education.

What are the characteristics of clinical scholarship?

Value Driven

Clinical scholarship is first and foremost, value driven. Underlying the willingness of clinical scholars to test their creativity and courage and autonomy is a love for their work. I believe that most nurses truly care about their clients with a passion that is grounded in the deep and abiding professional values to which we all subscribe – that a patient should not die alone, that families should be included in care, that each encounter with a patient should be growth producing, that the nurse-patient relationship should be therapeutic. These are the principles that we are willing to go to the wall for. Our personal worth as nurses is profoundly linked to the extent that we can consummate the values implicit in the word nurse.

Autonomy

Clinical scholarship also is about autonomy – not in the sense of independence, but in the sense of ownership, taking charge of our work and being accountable for the outcomes. When

we don't "own" our work, we have less emotional investment, less command of the patient care environment, and greater reliance on supervisors. Nurses who wait for someone else to point out the interesting features of their practice and then direct them to act on it are not practicing as clinical scholars. When we are invested, emotionally and intellectually, and perhaps even financially, in our work, we are positioned to achieve better outcomes.

Once we are invested in our work, we begin to look at the patient care environment in a different way – not as an immutable hindrance to nursing care, but as a therapeutic instrument. We then say to ourselves, "If I'm responsible for patient care outcomes, then I must have control of the context in which my practice occurs." In my experience, nurses do not really mind working hard if they have control over their practice and can see the results in the form of improved patient outcomes. I believe that it is really the bureaucratic hassles and layers of supervision that nurses hate. Without supervisors, all kinds of exciting things happen – problem solving, new initiatives, and interdisciplinary teams. When we interact directly and quickly with individuals in other departments, services, disciplines, and professions, we can be more responsive to our clients and families who are demanding expeditious and effective solutions to their problems. When we are accountable for the outcomes, we are more likely to move quickly to improve services and create new health care products and services for our clients.

Lamentably we haven't had too many new health care products in nursing lately – at least the kind that have captured the imagination of the public in the way that family-centered birthing rooms and the hospice movement have. These two nursing products are so compelling that if a hospital did not provide them or contract for them, they would not be competitive. I suggest that one of the reasons for the dearth of really exciting new products and services in nursing is that we are so intensely concerned about what we do (the activities that make up nursing) as opposed to whom we do it for (the population that is the object of our care). Imagine the influence of these two perspectives on the same specialty practice of oncology nursing:

> Nurse-centered description:
> **I am an oncology nurse. I work in a hospital where I assist patients and their families to deal with hospitalization and treatment associated with the disease. I maintain neutropenic precautions, monitor the course of chemotherapy and bone-marrow transplants, manage the side effects of treatment and provide education and emotional support to patients and families.**
>
> Patient-centered description:
> **I am an oncology nurse. My clients are individuals and their families who are at risk for or have been diagnosed with neoplastic diseases. It is my responsibility to assess and analyze their needs both prior and subsequent to diagnosis and to develop products and services that will respond to those needs in a clinically excellent, aesthetic and cost-effective manner.**

It is not difficult to imagine the opportunity for new products and services when we focus on the population being served instead of what the nurse currently does or where a nurse works. What we do and where we work always will change but our clients and the relationship we have with them will endure.

Creativity

Clinical scholarship is about creativity. Creative thinking may simply mean the realization that there is no particular virtue in doing things the way they always have been done.

It pains me to hear a nurse say “I’m just not creative,” perhaps because, again, as an educator, I suspect that we may have damaged the creative instincts of our students by teaching the right way to nurse, which was interpreted by students as the only way to nurse. In recent years, I imagine that nursing educators, in deference to the ascendancy of nursing research, may be more tolerant and have encouraged students, for example, to try alternative ways to treat decubiti or relieve pain; but just let a student challenge nursing diagnosis or the concept of caring, or family-centered care.

I believe that everyone can generate and act on an idea, but there is a deadly and deadening tendency in nursing to look to the “leadership” (usually referring to administration) to set the trends. We wait for “the vision” to trickle down in policies that are reinforced by layers of middle managers who are supposed to “do something about this.” In my opinion, real leaders should be dis-organizers in the sense of challenging the existing ways of doing things. In fact, I love it when faculty members complain about ambiguity or the absence of structure, because in reality, there is only problem solving. The real “structure” is the professionalism and intellect that exists inside of us. We need to get away from expecting administrative luminaries to have all the ideas and, instead, assume that every nurse is the star of his or her own show. The administrator's job is to create an environment for that to happen.

Any thinking person is capable of creativity. It may require, however, a purposeful attempt to get out of a rut. If we make our beds every morning, or wash the car every Saturday, we should try not doing it and see what happens; or perhaps take a different way to work so that we can see things from a different perspective. I suspect it is very difficult to solve a problem by trying to solve it. Sometimes we have to simply put it on the back burner and let it percolate or incubate while we hike or bicycle ride or simply enjoy some beautiful scenery. Being creative does not mean producing a major invention. Examples of the “in charge,” creative, clinical scholar mind set include, for example, charting by exception, keeping supplies in the patient's room, establishing a pre-admission calling program to answer any questions the patient may have, connecting families with the same health problem so that they can assist each other, or formulating a post-hospital rehabilitation and teaching program.

Clinical scholarship and contemporary health care

Despite the challenges created by today’s market-driven care environment (or perhaps because of them), clinical scholarship is more important than ever before. For nurses, these are truly the “best of times and the worst of times.” While some nursing positions in hospitals are being displaced, new ones are being created in primary care, prevention, sub-acute facilities, school health, case management and rehabilitation centers. The roles and responsibilities of nurses will continue to expand as they become the key health care providers of the next decades. And all indicators suggest that we are not producing sufficient numbers of nurses at the baccalaureate and master’s levels to meet the needs of an aging population, chronic illness and primary health in the next millennium.

The realities of health reform are (1) an increasing movement of nurses from hospital to community settings, often with inadequate preparation; and (2) even greater control of nursing practice by reimbursement systems that are oriented primarily to cost and time outcomes. There is no doubt that these economic imperatives driving the system will not go away. On the other hand, we cannot assume that the health care system that we once knew is the health care system we need.

I believe that the implications for nursing in the ensuing decades are promising:

* There will be an increased opportunity for autonomous practice.

* We are the profession that will guide clients through systems of care.
* Our long-standing interest in non-hospital based settings for the delivery of care, such as schools and the work place, will be realized.
* We will work consultatively with each other and with other kinds of providers in integrated care delivery systems.

But in order for the nursing profession to realize its full potential as a profession and to be part of the constructionist team, we will need to move quickly in several arenas – all of which are grist for the clinical scholarship mill:

1. Health care reform requires that nurses be open to change in prevailing models of practice. Currently, it is the role (nurse practitioner, clinical nurse specialist) and setting (intensive care, labor and delivery, home care) that determine the character of nursing practice. But these parameters for delineating practice are less useful in a market-driven system in which health care is based on the client's needs and not the nurse's product.

2. Health care reform requires new solutions, new ways of doing things, challenging traditions, and creating products and services to meet the needs of clients – whether they be individuals, families or communities.

3. Health care reform requires clinical judgment, brainwork. Nurses will be the patient care managers, the decision-makers. That is why all the concern about whether nurses or assistive personnel perform certain procedures misses the point. It is not so much about who is performing a procedure but who decides who will perform the procedure. This is a clinical decision and it is essential that it be grounded in clinical inquiry and an assessment of desired outcomes.

4. Health care reform will make nursing increasingly outcome driven. The goal of clinical scholarship also is to improve patient outcomes but we must seize the opportunity to develop outcomes that reflect nursing values and not just the time and cost outcomes proposed by health care consultants and third party payers.

   (We certainly would not evaluate an airline based solely on whether the plane arrived on time, and in one piece. In addition we would consider criteria such as the experience of the pilots, the qualifications of the mechanics, the hospitality of the gate agents and flight attendants, comfort, service, cleanliness, safety precautions, and many more.)

5. Health care will be increasingly system oriented. The search for better clinical outcomes necessarily takes nurses who practice in a scholarly manner beyond their own discipline to work directly and collegially with other health providers and nurses in other settings – both in the discovery and the application of new knowledge.

In summary, clinical scholarship will assist us to function autonomously as managers of patient care in an administratively flattened and integrated health care system, to document improvements and measure our effectiveness with reference to outcomes; to assume accountability for our work; to solve clinical problems and develop new products and services that are patient-centered and population-based; and to function in collaborative and interdisciplinary teams.

The changes that are taking place are not foreign to nursing, nor are they antithetical to nursing. For many years, we have advocated early discharge and shifting care to family members in home-like environments. Early detection, prevention, health promotion, are all long held nursing values and part of the nursing vision. We know that all the players – consumers, providers, and insurers – benefit when frequent and expensive hospitalizations and emergency room services are reduced. Case management certainly is not new to nursing (there is a rich history of private duty nursing and home care) and we know the value of pre-admission and pre-operative counseling and teaching. We also have acknowledged the importance of clinical evidence and research for guiding practice. We have recognized the need for outside the walls (continuous, coordinated, comprehensive) nursing care. Indeed, the nursing community has encouraged the shift from a physician-controlled, fee-for-service, home health delivery system to a capitated, population-based, nurse controlled delivery system. Clinicians and researchers already have identified the need for new models of nursing care delivery such as post-hospitalization or "sub-acute" facilities, respite care, and day care for technology-dependent patients, sick children, and the elderly.

Nurses must have both the vision and the initiative to propose a high-quality, low-cost system, guided by our professional values. In many respects, the changes in health care are providing the nursing profession with an unparalleled opportunity to activate its long-standing vision of holistic, continuous, integrated and cost-effective health care. As we assume the role of patient care managers in integrated, population-based health care systems, clinical scholarship will be the vehicle through which we can re-direct our practice, take advantage of the opportunities before us, and seize the moment to shape the future of health care.

- **Clinical scholarship is problem solving, innovation and creativity**
- **Clinical scholarship results in better patient outcomes**
- **Clinical scholarship is about activating and disseminating practice innovations**
- **Clinical scholarship is collaborative and interdisciplinary**
- **Clinical scholarship is value driven**

Clinical scholarship and careers

As a clinical scholar, it is essential to make the distinction between your job and your career – otherwise we attempt to hang on to something that is not real. A job is not a career; rather, it is simply the vehicle through which we express our career goals. If it no longer holds the possibility for doing that, it probably is time to look for or create a new vehicle. It is all right to put your job on the line because it's only a job. What is really important is having the self-confidence to acquire or create another job. Actually, the thought of doing any one job for a lifetime seems depressing to me and I am convinced that we will enjoy our work a lot more when we have more variety in it.

Practicing as a clinical scholar is, in fact, what distinguishes a job from a career in nursing. As it is in most areas of contemporary society, job security is essentially gone in the nursing profession. But it has been replaced by something much more important – the intellectual capital – of knowledge, genius, and creativity that nurses bring to health care. Today, the driving force of a career comes from the individual not from the organization; that is, security lies not in where we work, but in ourselves. The exciting feature of contemporary health care is that nursing is now unleashed to create new positions and new roles, as yet undreamed of.

Those who want to be part of the health care system of the future need to take the initiative to study and know the health care industry and the specific problems it's facing. Then

they need to develop a presentation that effectively shows how they can solve those problems. Taking initiative does not mean being pushy, obnoxious, or aggressive. It does mean identifying the health care needs of citizens and acknowledging our responsibility to make things happen in relation to these needs. Nurses of the future must know how to solve problems, develop solutions, create new products and positions and carry them out. New graduates should go where they can learn the most, not just where they're paid the most (the monetary rewards will come). They should find positions where they can advance their careers by associating with the top people in their chosen field of nursing, achieve recognition for their efforts and, ultimately, affect practice. But most of all, they should seek an environment providing a rich and satisfying work life, truly functioning as clinical scholars.

Naturally, these notions would only serve as grandiose ideals without the support of real-life, practical examples of how they can be achieved. The following series of exemplars does just that, for these are the stories of nurses wholly devoted to raising the standard of clinical scholarship for all who practice. For those who come behind these pioneers, the future is very bright indeed.

Clinical Scholarship Questions

1. How does a clinical scholar's practice differ from that of other nurses?

2. How does a clinical scholar demonstrate the integration of evidence into their practice on a day-to-day basis?

3. What skills/competencies enhance development of clinical scholarship?

4. At what stage in a nursing career trajectory is it possible to function as a clinical scholar?

5. What are the characteristics of clinical scholars and how do they differ from other types of scholars?

6. How does a clinical scholar apply nursing theories in their practice? How does a clinical scholar participate in the generation of new theory?

7. What is the relationship between clinical scholarship and clinical research?

8. What do we need to change in nursing education and in nursing administration to promote clinical scholarship?

9. How can nursing educators, administrators and clinicians work together to promote clinical scholarship?

10. How can Sigma Theta Tau International acknowledge and celebrate clinical scholarship?

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Table A

Criteria for Student Work

Policy Writing	
Policy is readable/ clear; makes sense	__/5
Policy is grammatically correct/clearly written	__/10
Policy could be followed as written	__/10
Critical points are made evident	__/5
Statements codified according to type/level of evidence	__/15
Review of Research	
Students consider current research (<5 years old), literature, and expert opinion	__/10
The policy is developed from best evidence; a range of current, credible sources	__/10
Citations at end in standardized format	__/10
Depth/breadth of research, literature, expert opinion is summarized	__/10
Students follow guidelines on rating evidence including:	
Providing support for each recommended procedural step	__/5
Listing all references at the end of the P&P	__/5
Listing key words at the end of the P&P	__/5
Style	
Readable, well organized, grammar and spell checked	__/10
Total points	**__/100**

(Adapted from the Iowa Model of Evidence-Based Practice for Quality Care, 2002)

Table B: Leveling of Evidence

R Research articles (level of evidence):

Level I: Meta-analysis of multiple controlled studies

Level II: Individual experimental study/multiple qualitative (especially longitudinal) studies

Level III: Quasi-experimental (non-random controlled)

Level IV: Non-experimental (descriptive, correlational, individual qualitative)

Level V: Case report; program evaluation

Level VI Opinion-based article

L Literature, non-research based, or textbooks

G National **g**uideline or practice standard from nationally recognized professional org. (e.g., AWHONN, ACCN)

E Expert consensus, affirmed experiences

Q Quality or benchmarking data

M Manufacturer's recommendations

T Traditional practice: no support in literature

Developing an Evidence-Based Protocol for the Prevention and Treatment of Postoperative Nausea and Vomiting

Keane, K., Drabik, B., Gray, A., Schultz, A., Maine Medical Center, Portland, Maine

Purpose: Nausea and vomiting are frequent side effects that affect patients during their postoperative course in the Cardiac Surgery Recovery Unit; this impacts patients' comfort and recovery as well as consumes additional health care resources. Internal evidence from an in-house chart review of cardiac surgery patients over a 2-week period determined that 39% of patients received a postoperative emetic. A work group convened to address the need for an evidence-based protocol for the assessment, prevention, and treatment of postoperative nausea and vomiting.

Description: A computerized search was conducted and the available evidence was critiqued by an interdisciplinary team of nurses, pharmacists, cardiothoracic surgeons, and anesthesiologists. In particular, nationally published consensus guidelines developed in 2003 were critiqued. The guidelines were synthesized in a table outlining strengths and weaknesses, as well as the applicability and feasibility of adopting the guideline recommendations. Additional information not covered in the guidelines was addressed in a separate integrated table. Based on synthesis of external findings, an evidence-based protocol for the prevention and treatment of postoperative nausea and vomiting in cardiac surgery patients was developed. The project was approved by the hospital's Institutional Review Board, and a systematic chart review to obtain baseline information is currently underway. Implementation of the protocol is planned for October 2004.

Evaluation and Outcomes: Following implementation, follow-up chart review will examine adherence to the protocol, impact on the incidence of postoperative nausea and vomiting, and cost implications. Outcome data will include quantitative measures for length of stay and costs, and qualitative descriptors of patient responses. Preliminary outcome analysis will be available April 2005.

CSRU N/V EBP Data Collection Tool

Patient Study Number

Medication allergies

Surgical procedures(s)

Length of procedure

Length of stay

Male	Female				
Age					
Smoker	Non-Smoker				
On call meds given					
Intra-operative meds given					
Patient reversed?	Yes		No		
Postoperative nausea and vomiting?	Yes		No		
Medications given post-op	Day 0	Day 1	Day 2	Day 3	
ondansetron Zofran					
Reglan					
prochlorperazine Compazine					
promethazine Phenergan					
Dolasetron					

C(circled) indicates meds which were charted in MIS/SCM

Do you have a history of PONV or motion sickness or morning sickness?

What specifically have nursing staff or other health care providers done to help minimize your problems with PONV?

Were the medications administered effective in relieving your symptoms?

Has it been difficult to control your pain postoperatively?

Evidence-Based Protocol for the Prevention of Postoperative Nausea and Vomiting (PONV) in Open Heart Surgery (OHS) Patients

Goal: optimize management of PONV post-OHS

Quality of care goal/Patient satisfaction goal: Decrease the number of patients who experience post-op nausea and vomiting through evidence-based care of PONV without adversely affecting patient pain scores.

Cost goal: Improve charting of anti-emetic medications and optimize the usage of serotonin receptor antagonists currently being used in the Cardiac Surgery Recovery Unit (CSRU). Cost benefits are anticipated via the recovery of medications being charted and through less usage of serotonin receptor antagonists. Analyze impact on length of stay.

Institutional learning goal: Determine unit adherence to protocol and identify barriers to its implementation. Determine applicability of program to other critically ill post-op patients.

DRAFT CSRU PONV Protocol DRAFT

All OHS patients are identified as at high risk for PONV (based on risk assessment work by Apfel et al. (2002) and Koivuranta et al. (1997).

Patients are preemptively treated for prevention of PONV with dexamethasone (5-10mg IV) at induction and a serotonin receptor antagonist (ondansetron 4mg IV or dolasetron 12.5mg IV) pre-emergence.

Rescue treatment of breakthrough post-nausea and vomiting should be with an agent from a different class from initial therapy (i.e., prochlorperazine 5-10mg IV or promethazine 6.25mg to 12.5mg IV q 6 hr).

Anti-emetic order sets will clearly indicate the frequency of administration of the medications used for treatment of PONV.

Post-op nursing interventions that may prevent or minimize post-nausea are identified, that is, ensuring patient's pain control, gentle mobilization, and ambulation of patient.

References:

Apfel C.C., Kranke P., Eberhart, A., et al. (2002). Comparison of predictive models for postoperative nausea and vomiting. *British Journal of Anaesthesia, 88,* 234-240.

Koivuranta, M., Laara, E., Snare, L., et al. (1997). A survey of postoperative nausea and vomiting. *Anaesthesia 52,* 443-449.