

Advancing Nursing Research Through a Mentorship Program for Staff Nurses

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ABSTRACT

This article describes a unique model of implementing unit-based research teams to provide staff nurses with knowledge, skills, and mentoring. The essential elements of designing and conducting a research study are emphasized in an effort to improve nursing practice and the quality of patient care. The research education and practicum are incorporated into team meetings. This unique model pro-

vides greater efficiency and effectiveness of resources and allows for more interactive education than occurs in traditional models. Unit-based nursing teams learn together to design research studies, test hypotheses, and answer clinically relevant research questions, using the scientific process.

Keywords: clinical nursing research, nursing research, research institute

Research is one of the most powerful tools for advancing the science of nursing and improving the quality of patient care and outcomes. Nurses can play an integral role in answering clinically relevant questions and solving clinically relevant problems through the process of conducting original research. Yet nurses are often challenged by the “how to’s” and the complexity of designing and conducting a research study. This article describes a program for staff nurses that provides knowledge, skills, and mentoring in the essential elements of designing and conducting a research study to improve nursing practice and the quality of patient care.

Program Description

The Ronald Reagan University of California at Los Angeles (UCLA) Medical Center developed the Research Institute. Planning for the Research Institute began in 2006 with 1 pilot unit and then expanded in 2007 to market the Research Institute to all hospital units. The impetus was to cultivate staff nurses to work

collaboratively with advanced practice nurses (usually clinical nurse specialists or qualified clinical/administrative leaders) who are referred to as research team leaders in unit-based research teams. Each session of the research-intensive institute is focused on the essential elements of designing and conducting a research study to answer clinically relevant research questions. Working together as a unit-based research team, staff nurses and research team leaders learn to design a research study, test hypotheses, and answer research questions using the scientific process. The Research Institute stimulates

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innovative thinking about practice issues that require rigorous scientific investigation and has expanded the scientific foundations of nursing practice at the Ronald Reagan UCLA Medical Center.¹

The duration of the Research Institute ranges from 12 to 24 months and depends on the complexity of the research project that is chosen. Over the course of the institute, the research team (staff nurse and research team leader) meets twice a month. Each meeting typically lasts 2 hours to address select elements of the research process and to simultaneously learn how to conduct scientific research (eg, choose a suitable research question, develop a research proposal, and obtain needed approvals). A unique feature of this program is that the education and practicum regarding the design and conduct of research are incorporated into the 2-hour meetings of the unit's research team. At several key points during the year, 4-hour meetings are held, in which participants actively work on synthesizing the literature, pulling together the various parts of the research proposal that they have been working on during the 2-hour sessions, and interpreting results from data analyses.¹

The director of research and evidence-based practice, a doctorally prepared researcher, oversees the Research Institute and serves as the research mentor for staff nurses and the research team leaders with whom they are

paired. The research team leaders are also mentored by the director in the process of leading a research team and assisting in all phases of designing and conducting a research project. Staff nurses and research team leaders learn to (1) identify practice questions that are suitable for development of a research proposal, (2) work effectively as a unit-based research team, (3) design and present a proposal for a clinical research study, (4) submit a clinical research proposal to an institutional review board, and (5) conduct research that is consistent with the mission and values of their institution, in this case, UCLA.¹ All studies within the Research Institute undergo approval by the UCLA institutional review board.

The research team assesses the results of the study and develops a plan of action to bring about changes in practice that are based on their findings. Research findings are disseminated internally to divisional and departmental committees and councils and externally at professional meetings and through publications. Table 1 provides a partial list of selected current studies within the Research Institute that have manuscripts in preparation or under review by peer-reviewed journals.

Selection of Nurses

Each year, 1 to 5 unit-based research teams are selected in a competitive application process.

Table 1: Partial List of Current Research Institute Studies and Outcomes Implemented Into Practice

| Title of Study | Clinical Area of Unit-Based Team | Practice Changes/Outcomes |
|--|----------------------------------|---|
| Comparison of High-Frequency Chest Wall Oscillation Versus Chest Physiotherapy on Patients' Pain, Dyspnea and Preference While Maintaining Lung Function Among Post-Lung Transplant Patients | Critical care | Optimized current airway clearance therapy to prevent pulmonary complications by demonstrating high-frequency chest wall oscillation as an effective and feasible alternative to chest physiotherapy among lung transplant recipients. |
| Effect of a Preoperative Instructional Digital Video Disc on Knowledge, Anxiety, and Postoperative Outcomes in Patients Undergoing Esophagectomy | Intermediate care/telemetry | Integrated a comprehensive preoperative education program that uses an educational video to optimize the patients' level of knowledge and ability to participate in their postoperative care. |
| Assessing Fall Risks Among Hospitalized Pregnant Women: Developing an Early Warning Scoring System | Perinatal | Implemented an obstetric population falls-prevention guideline and scoring tool to determine the patient's fall risk with interventions reflecting these scores and to focus safety efforts on a typically young, healthy patient population. |

On the applications, potential members of the research team are asked for information about their clinical experience and their familiarity with research (through either knowledge or experience). Nurses listed on the application are also asked to provide an example of how they have worked together previously to solve a clinical practice issue. Unit-based research teams ideally consist of 4 to 5 staff nurses and 1 research team leader from a unit and/or clinical practice area who team up to submit an application. The director evaluates all applications.¹

To be selected for the research team, staff nurses must meet the following criteria:

- at least 1 year of nursing experience,
- at least 1 year of tenure in the current clinical area/unit,
- employed at least half-time,
- interested in learning about designing and conducting research studies,
- willing to work in partnership with the research team leader and the unit manager,
- able to meet criteria from annual performance evaluation,
- willing to commit to completing the research project and to the success of the research team, and
- willing to attend twice-monthly meetings of the research team consistently.

To be selected for the research team, the research team leader must meet the following criteria:

- minimum of 2 years of experience in advanced practice nursing,
- at least 2 years of tenure in the current clinical area/unit,
- interested in learning how to design and conduct a research study,
- willing to work as a partner with staff nurses and the unit manager,
- able to meet or exceed requirements for clinical performance, and
- recognized as a clinical resource by staff nurses in the unit.

The research team leader also possesses skills to run a meeting effectively and to move the research team and the project along to completion. The research team leader is able to facilitate the group process, particularly for decision making and reaching consensus among group members. In addition, the research team leader

is well organized, able to develop a detailed agenda, and skilled at starting and ending a meeting on time. Team leaders are prepared to give recognition to the team members for accomplishments and successes, rather than to themselves. Above all, research team leaders commit to completing the research project and to ensuring the success of their team.¹

Funding

Leaders in the nursing department advocate for a culture that integrates nursing research as a critical component of professional practice. To involve nurses in the conduct of research, advance the science of nursing, and improve patients' outcomes, the chief nurse executive for the Department of Nursing, Heidi Crooks, implemented the Research Institute. The Research Institute is one of 4 Institutes of Learning (the others are focused on leadership, education, and ethics) that were conceptualized by Dr Vivien Dee, director of research, education, and professional affairs at the Ronald Reagan UCLA Medical Center. The Research Institute is an organizational infrastructure that grants clinical nurses monthly dedicated release time to carry out research projects.

Funding for the Research Institute is provided by the mandatory continuing education cost center. Funds cover the estimated expenses for each staff nurse to receive release time for the twice-monthly 2-hour meetings to choose an appropriate research question, develop the research proposal, obtain appropriate approvals, and conduct the study. Time for participating in the Research Institute team meetings is coded as class time and is separate from operational budget expenses. Additional work for the research project can be requested in 4-hour blocks of time, not to exceed 12 hours per month, at regular, not overtime, pay.

Leadership Support

The director coordinates the Research Institute and works with staff and their respective research team leaders to assist in all phases of their research project, from brainstorming the research question to assisting with implementation of practice changes based on research findings. Concepts and processes used in the Research Institute were adapted from a program developed by Chulay.² Her program uses research teams and focus groups to engage clinicians in the conduct of research; the program has been adapted several times to meet organizational

and departmental needs at Ronald Reagan UCLA Medical Center.

Team members learn to use research methods to discover new knowledge that ultimately improves patient care. The Department of Nursing Research and Education provides educational materials, poster supplies, and secretarial assistance.

The research team leader provides additional support for the team by working with members of the unit-based team who are in similar specialties. Research team leaders provide expert clinical advice and help team members comply with appropriate communication channels in conducting a research study.³⁻⁵ The communication channels may include committees, members of multidisciplinary teams, and key stakeholders. The director functions as a consultant to the research team, assisting with the review of the literature, development of the research proposal, processes related to meeting the requirements of the institutional review board, and all phases of the project.³⁻⁵

Unit nurse managers provide 2 types of support to the research team to ensure its success. The first type of support is financial. The unit manager provides the team members with release time from direct patient care to attend monthly meetings. This salary support provides work time for the nurses to attend educational sessions held within meeting times and to complete the activities required by the Research Institute program.^{3,5-8} Second, unit managers provide support by creating an environment that encourages learning and innovation. The manager validates the worth of the unit-based research team's activities, provides the team members with opportunities to share activities with other staff colleagues, and facilitates time to work on the research project on the basis of agreed-upon goals.^{3,5-8}

Unique Model

The Research Institute differs from other published research and evidence-based practice programs that provide experiential research-related learning opportunities to staff nurses in 3 areas.

First, our Research Institute is unit-based. Most of the established research programs⁹⁻¹³ and evidence-based practice internship and fellowship programs^{3,14-17} recruit individual nurses. Our Research Institute recruits research teams consisting of a minimum of 4 to 5 staff nurses from the same unit. This creates a distinct ad-

vantage in that knowledge and skills surrounding research are enhanced in all members of the team, rather than only for an individual nurse. In addition, the unit staff and patient population are more likely to benefit from research results in a timely manner.

Second, the collective nature of a team facilitates shared learning and conduct of a research study. Such collaboration energizes team members, creates synergy, and results in faster data collection. Accomplishing a research project can be grueling work for an individual nurse, and maintaining momentum through to completion is challenging; this is especially true when barriers and challenges occur. Overcoming difficulties as a team strengthens the team as a group and the members as individuals. Joint problem solving resulting in successful navigation of obstacles enhances teamwork. Confidence and perseverance are gained as each individual commits to completing his or her part of the research project.

Last, the group process provides greater efficiency and effectiveness. Team members learn the research process through structured team meetings and the lived experience of developing a research proposal and conducting the research study. The education and practicum regarding the design and conduct of research are incorporated into the meetings of the unit's research team. The Research Institute educates nurses to develop the precise clinical research questions and, as a team, to use research methods to discover new knowledge that ultimately improves patient care.

Table 2 provides a comparative overview and brief description of select clinical research and evidence-based programs based on the 3 key areas derived from our unique unit-based research model. Overall, the unit-based research team is a more appropriate approach when resources are limited. New unit-based research teams can be launched, while other research teams move toward project completion. Over time, many unit-based research teams can be established that are in line with budget and resource allocation.

Example of a Research Team in Action

Leaders and clinical nurses providing direct care in the cardiothoracic intensive care unit (CTICU) formed 1 of the unit-based research teams as part of the Research Institute program. The CTICU research team was formed

Table 2: Comparative Overview and Brief Description of Select Clinical Research and Evidence-Based Programs Based on the 3 Key Areas Derived From Our Unique Unit-Based Research Model

| Program | Key Areas |
|---|---|
| Research Institute at Ronald Reagan UCLA Medical Center ¹⁸ | <p>Unit-based team recruitment</p> <p>Shared learning, joint problem-solving</p> <p>Team mentoring by advanced practice nurse-director of research dyad</p> <p>Lived experience-based learning approach to research education</p> <p>Additional program information: Director of research mentors research team leader and unit-based staff nurses. Meet twice monthly during 2- to 4-hour structured sessions and practicum to learn the research process, develop a proposal, and conduct the study. Interdisciplinary experts are consulted (eg, physicians, nursing faculty, and statisticians). Dissemination includes institutional, local, regional, and national poster and podium presentations and manuscripts.</p> |
| Research Nurse Intern Program at the University of Nebraska Medical Center ³ | <p>Individual recruitment</p> <p>Research nurse intern/advanced practice nurse dyad and consultation by clinical nurse researcher for learning problem-solving</p> <p>Formal classes, workshops</p> <p>Additional program information: Doctorally prepared clinical nurse researchers coordinate and assist staff nurses with proposal development as consultants. Advanced practice nurses provide clinical expertise, mentor interns, and help facilitate incorporating research into practice. Curriculum includes monthly formal classes and full-day workshops. Interns coordinate research presentations by guest speakers (eg, faculty, graduate student, or health care team member) to heighten awareness of clinically relevant research to unit staff nurses. Dissemination includes institutional, local, and national poster and oral presentations.</p> |
| Nurse Research Fellowship at Queen's Medical Center ⁹ | <p>Individual recruitment</p> <p>Nurse research fellow, Queen Emma Nursing Institute director, and guest speakers for coaching and problem solving</p> <p>Structured didactic and hands-on learning approach to research education</p> <p>Additional program information: Fellows attend monthly 4-hour research education sessions that incorporate didactic content, hands-on training, group work, self-learning modules, and guest lectures. Assigned homework includes reading course textbook and literature searches. Teaching and coordination carried out by Queen Emma Nursing Institute director and PhD-prepared research grant writer. Fellows coached 1-on-1 by director and expert guest speakers on the research process. Small, competitive institutional fellowship grants available to fund research.</p> |
| Nursing Research Fellowship Program at Northwest Community Hospital ¹⁰ | <p>Individual recruitment</p> <p>Research fellow or partner, PhD consultant, co-chairs of the Nursing Research Council, advanced practice nurses, and the research consultant for mentoring and problem solving</p> <p>Educational program curriculum (workshops) for learning research</p> <p>Additional program information: Research fellow or partner is mentored during monthly meetings and by e-mail or phone throughout the fellowship. Attend four 8-hour educational workshops with assignments. Dissemination includes institutional and national poster and podium presentations in addition to publications. Program expansion reported to include disciplines outside of nursing.</p> |

(continues)

Table 2: Comparative Overview and Brief Description of Select Clinical Research and Evidence-Based Programs Based on the 3 Key Areas Derived From Our Unique Unit-Based Research Model (*Continued*)

| Program | Key Areas |
|---|---|
| Hospital-based Nursing Research Fellowship Program at St. Jude Children's Research Hospital ¹¹ | <p>Individual recruitment</p> <p>Nursing research fellows, the leadership group in Patient Care Services, the advisory board, and the nurse researchers coordinating the program for problem solving and teamwork on 1 study project</p> <p>Educational program curriculum (didactic, skill-building exercises) for learning research</p> <p>Additional program information: Nurses elected to participate in fellowship by random selection based on established criteria. Emphasis is placed on incorporating fellows into the hospital's research structure and promoting participation in clinical research. Curriculum consists of didactic content, skill-building/learning exercises, and expert guest lectures. Monthly meetings occur over 12 months. Fellows worked together on one group study project. Dissemination includes abstract submission, in-services, manuscript, presentation, and nursing care guidelines.</p> |
| Clinical Nursing Research Program at University of Virginia Medical Intensive Care Unit ¹² | <p>Individual recruitment into team membership</p> <p>Clinician and advanced practice nurse mentorship to include shared learning and joint problem solving</p> <p>Biweekly meetings to discuss steps in research proposal development</p> <p>Additional program information: Individuals seek to participate in predetermined projects, ongoing research, or projects of interest with specific individuals, or projects determined as a research team. May participate in projects initiated externally to the medical intensive care unit but require the unit's collaboration in data collection and coordination. Biweekly meetings take place to develop research proposal. Project coordinator is selected to coordinate team meetings, organize staff in-services, schedule data collection, and manage data. Mentorship provided by the advanced practice nurse. Dissemination through formal and informal internal presentations or written summaries, national meetings, and publications.</p> |
| Clinical Research Mentor Model at University of Virginia Health System ¹³ | <p>Individual recruitment</p> <p>Clinical research mentor/program director dyad for real-time learning and problem solving</p> <p>Formal sessions, application, and shared experiences for learning research process</p> <p>Additional program information: Trains research mentors to guide a team of clinical researchers through the stages of the research process. Research mentor is instructed by the program director (an advanced practice nurse) to conduct focused, unit-based research. Formal sessions are scheduled throughout the year to teach components of the research process. Program incorporates real-time learning and content application with shared experiences. Dissemination includes local, regional, and national presentations as well as publications.</p> |
| Clinical Research Fellowship by Victorian Centre for Nursing Practice Research and Centre for Psychiatric Nursing Research and Practice ¹⁴ | <p>Individual recruitment</p> <p>Clinical nurse fellow/unit manager dyad for problem solving</p> <p>Program of plenary sessions and small group tutorials for learning research</p> <p>Additional program information: A 2-week full-time program is administered by the Victorian Centre for Nursing Practice Research with support by Centre for Psychiatric Nursing Research and Practice. Curriculum includes plenary sessions and small group tutorials (eg, interactive CD-ROM and workbooks). Use 8 weeks (part-time) for applying findings into practice and providing a teaching session where fellows present on a feature of evidence-based practice. Present results during institutional Seminar Day.</p> |

(continues)

Table 2: Comparative Overview and Brief Description of Select Clinical Research and Evidence-Based Programs Based on the 3 Key Areas Derived From Our Unique Unit-Based Research Model (*Continued*)

| Program | Key Areas |
|--|---|
| Evidence-Based Practice Staff Nurse Internship at University of Iowa Hospitals and Clinics ¹⁵ | <p>Individual recruitment</p> <p>Staff nurse intern, nurse manager, advanced practice nurse, and evidence-based practice facilitator team for learning and problem solving</p> <p>Didactic coursework, interactive classroom days</p> <p>Additional program information: Team includes staff nurse intern (serves as project director/lead), nurse manager (allocates resources/supports implementation), advanced practice nurse (primary mentor/project facilitator/liaison), and evidence-based practice facilitator (provides expertise and project support). Didactic coursework program includes team meetings, e-mail discussions, and time to work on selected projects. Interns attend national meeting on evidence-based practice as part of the curriculum. Experts sought on the basis of the project. Findings are disseminated internally and externally (eg, newsletter, paper, and poster presentations).</p> |
| Nursing Research Internship at Vanderbilt University Medical Center ¹⁶ | <p>Individual recruitment</p> <p>Nursing research intern, director, and experts for learning and problem solving</p> <p>Didactic coursework, homework, research skill-building exercises</p> <p>Additional program information: Nurse interns selected by nurse managers and administrative directors. Attend monthly workshops consisting of didactic coursework, homework, group discussion, and hands-on research skill-building exercises by director of nursing research. Experts (eg, continuous quality improvement, biomedical library, and chief nursing officer) present on specific content. Peer group support is noted. Dissemination of results accomplished through institutional abstracts, posters, and presentations.</p> |
| Evidence-based Practice Fellowship Program at Memorial Regional Medical Center ¹⁷ | <p>Individual recruitment</p> <p>Evidence-based practice fellow, nurse researcher, and director of nursing education for learning and problem solving</p> <p>Intensive educational sessions, group education</p> <p>Additional program information: Nurse researcher (program coordinator) and director of nursing education teach program content. Fellows attend monthly seminars and meet with nurse researcher. Networking with other nurses encouraged, and fellows receive additional guidance from multiple nursing councils. Curriculum includes intensive full-day educational sessions, half-day group education/sharing, and independent project work. Fellows disseminate findings through institutional poster presentations and abstract submissions to local, regional, and national conferences (poster or podium presentations).</p> |

because of clinical nurses’ interest in working collaboratively with clinical nurse specialists and other clinical and administrative leaders to develop knowledge and critical skills needed to design and conduct a research study.

The research team chose to conduct a study titled “Comparison of High-Frequency Chest Wall Oscillation (HFCWO) Versus Chest Physiotherapy (CPT) on Patients’ Pain, Dyspnea and Preference While Maintaining Lung Function Among Post–Lung Transplant Patients.”¹⁸

This topic was chosen after an extensive brainstorming process during several group-based sessions focused on the CTICU patients, frequent nursing interventions, common technologies, common patient care problems and nursing concerns, and potential research questions. The research nurses fostered an environment of open communication, teamwork, and team building with other staff from the CTICU by updating them regularly on the progress and outcomes of team discussions (eg, via e-mails,

staff meetings) and welcoming their ideas and suggestions in choosing a research question/topic and developing the study protocol.

In addition, at various points in the development of the proposal and in the data collection, the research team consulted with representatives from several disciplines, including the following:

- Physicians, who provided insight and expertise in the study design and in the interpretation of relevant study findings.
- Respiratory therapists, who provided practical knowledge about respiratory treatments (eg, nebulizers) for lung transplant recipients and expert opinion on the content of the peak flow meter and $\text{SpO}_2/\text{FiO}_2$ competencies used as a part of the study procedure.
- Transplant coordinators, who assisted in developing and implementing aspects of the study protocol (eg, getting informed consent from patients in the pulmonary clinic before lung transplant) and abstracting clinical data from patients' lung transplant records.
- School of Nursing faculty, who provided expertise in research design, methods, statistical analyses, and interpretation of findings.
- A statistician, who provided statistical support services to the research team in the initial planning stages of the study design, during data analysis, and when the results were reported.

Results of the Research Project

The study was approved by the institutional review board and conducted for 1 year and 6 months. The results of data analyses were reviewed and interpreted for statistical significance and clinical relevance by using a group discussion approach during the prescheduled twice-monthly meetings. Details of the study results are being published in a separate article¹⁸; however, a brief summary of the study results is provided here:

- Demographics: Recipients of bilateral lung transplants (BLTs) were significantly younger than recipients of single lung transplants (SLTs).
- Pain: Pain scores were significantly lower in patients treated with HFCWO than in patients treated with CPT at 10 AM and 6 PM for SLT recipients and at 10 AM for BLT recipients. However, survey responses showed no difference between the 2 therapies with respect to pain experienced by patients.
- Preference: BLT recipients preferred HFCWO over CPT and found HFCWO more effective than CPT.
- Dyspnea: Overall, dyspnea scores were higher in patients treated with HFCWO than in patients treated with CPT; this difference was apparent in both SLT and BLT recipients at 10 AM and 6 PM.
- Lung function: In most cases, HFCWO provided the greatest increase in $\text{SpO}_2/\text{FiO}_2$ ratio from pretreatment to posttreatment. The exception was in SLT recipients at 10 AM, where CPT provided the greatest increase in $\text{SpO}_2/\text{FiO}_2$ ratio from pretreatment to posttreatment.
- Overall, peak expiratory flow did not change significantly with either CPT or HFCWO in both SLT and BLT recipients at 10 AM and 6 PM.

Dissemination and Enculturation

Nurses on this CTICU research team reported the results of the study internally within the unit, throughout the nursing department through nursing research grand rounds, and at the annual research and evidence-based practice conference. Team members also presented their findings externally at national conferences and meetings (Table 3); thus, they influenced patient care and nursing practice at local, regional, and national levels. Abstracts describing study results were published in conference proceedings and in journals sponsored by the professional organizations listed in Table 3. Each nurse on the unit-based research team was given the opportunity to participate voluntarily as a presenter at conferences or meetings where submitted abstracts had been accepted. Travel expenses for nurse presenters were supported by the Department of Nursing at Ronald Reagan UCLA Medical Center.

Outcomes of the Research Project and Participation in the Research Institute

Conducting this experimental study provided critical care nurses with a research-based intervention to improve pulmonary hygiene in acutely ill and high-risk critically ill lung transplant recipients. These preliminary results provide clinicians with methods to optimize airway clearance and prevent pulmonary complications. This study resulted in improving the following outcomes: (1) effective and appropriate use of

Table 3: Dissemination of Study Results and Methods at Local, Regional, and National Conferences and Meetings

| Conference Date | Presentation Type | Organization | Conference Title | Location |
|--|-------------------|--|---|-----------------|
| October 23-24, 2008 | Poster | SigmaThetaTau International | Joint Southern California Chapters of SigmaThetaTau International Research Conference | Los Angeles, CA |
| January 9-13, 2010 | Poster | Society of Critical Care Medicine | 39th Critical Care Congress | Miami Beach, FL |
| April 14-17, 2010 | Podium | Western Institute of Nursing | 43rd Annual Communicating Nursing Research Conference | Glendale, AZ |
| April 21-24, 2010 | Podium | International Society for Heart and Lung Transplantation | 30th Annual Meeting and Scientific Sessions | Chicago, IL |
| April 30, 2008 April 30, 2009 April 29, 2010 | Poster and podium | UCLA Health System Nursing | Annual Research and Evidence-Based Practice Conference | Los Angeles, CA |
| May 12, 2009 May 11-12, 2010 | Posters | UCLA School of Nursing | UCLA School of Nursing Research Days | Los Angeles, CA |
| May 14-19, 2010 | Poster | American Thoracic Society | 2010 International Conference | New Orleans, LA |
| May 15-20, 2010 | Posters | American Association of Critical-Care Nurses | National Teaching Institute | Washington, DC |

technology to optimize patients’ assessment, management, and/or outcomes; (2) effective approaches to symptom management; (3) prevention and management of complications; and (4) efficient use of nursing time as an element of work performance and professional practice.

The nurses on the research team have become leaders on their unit by working to improve nursing practice and patient care; they are sharing preliminary findings among clinical colleagues internally, who have also become engaged in the process of participating in research. Moreover, the nurses acquired advanced knowledge about the care of lung transplant recipients. As nurse researchers, they are evaluating other areas of needed research on their unit in an effort to opti-

mize clinical outcomes, and they are proposing possible research questions. The research nurses observed a heightened awareness among their colleagues (eg, nurses, physicians) about the value of postoperative CPT and HFCWO treatments in lung transplant recipients and other cardiothoracic patients.

Evaluation by Nurse Participants

An evaluation of nurses participating in the Research Institute demonstrated multiple benefits of the institute. When asked about how well participants would be able to apply the knowledge they learned during the

Research Institute’s program in their practice, the nurses stated:

- “[I] realized I have to be more careful and attentive to every intervention I do with my patients because it affects their overall hospital stay.”
- “We learned [that] our thinking process is a little more detailed and geared toward research practice concepts while conducting our unit’s PI [performance improvement] committee meeting.”
- “I am more knowledgeable about evidence-based practice and how it affects my practice.”

Furthermore, nurses on the research team described how the Research Institute’s program met their professional development goals:

- “I feel that I am contributing to the advancement of nursing practice.”
- “[I am] much more aware [of] the importance of research in [the] field of nursing.”
- “[I am] very thankful for this opportunity.”

Additional results from the evaluation of the Research Institute’s program are displayed in Tables 4 and 5. Overall, participants in the Research Institute reported a high level of quality (rated *good* to *excellent* on a 5-point Likert scale where 1 = *poor* and 5 = *excellent*) for various aspects of the Research Institute. The aspects of the Research Institute that were evaluated included furthering understanding of research, applying knowledge to practice, rating content, format of the meeting, support received, and paid compensation. All participants reported that they would recommend the Research Institute program to a colleague or another unit.

Conclusion

The Research Institute program has been an important part of the infrastructure at Ronald Reagan UCLA Medical Center that facilitates nurses’ involvement in the conduct of original research. The benefits of the Research Institute are multiple, with the single most important benefit being that the institute offers our patients even greater opportunity to receive science-based, high-quality care.

| Table 4: Results of Participants’ Evaluation of the Research Institute | |
|---|-------------------------|
| Questions | Mean Score ^a |
| 1. How helpful was your involvement with the Research Institute program in furthering your understanding of conducting a research study? | 4.6 |
| 2. How well will you be able to apply the knowledge you learned during the Research Institute program in your nursing practice and unit setting? | 4.7 |
| 3. To what extent did the Research Institute program meet your professional development goals? | 4.7 |
| 4. To what extent will the quality and effectiveness of your professional activities be enhanced as a result of your participation in the Research Institute program? | 4.8 |
| 5. How would you rate the content and format of the meetings during the Research Institute? | 4.9 |
| 6. Please rate the extent of support you received from faculty for the conduct of your research study during the Research Institute. | 5.0 |
| 7. Please rate your satisfaction with the paid compensation for completing the Research Institute program. | 4.2 |
| 8. Would you recommend the Research Institute program to a colleague or another unit? | Yes, 100% |

^aScoring was on a Likert scale of 1 to 5, with 1 = “Poor” and 5 = “Excellent.”

Table 5: Results of Participants' Evaluation of Their Experience Conducting Research at the Research Institute

| How Would You Rate Your Experience With the Following Aspects of Research? | Mean Score ^a |
|--|-------------------------|
| 1. Finding a research topic | 4.3 |
| 2. Reviewing the literature | 4.3 |
| 3. Defining problem and hypothesis | 4.4 |
| 4. Knowledge of research design | 3.8 |
| 5. Developing a research proposal/protocol | 4.4 |
| 6. Performing informed consent | 4.8 |
| 7. Performing data collection | 4.6 |
| 8. Analyzing/interpreting preliminary data | 4.0 |
| 9. Presenting research (oral and poster) | 4.4 |
| 10. Amount of time allotted to complete research/attend team meetings | 4.3 |

^aScoring was on a Likert scale of 1 to 5, with 1 = "Poor" and 5 = "Excellent."

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