Using Implementation Science as the Core of the Doctor of Nursing Practice Inquiry Project

MARY E. RINER, PhD, RN, FAAN

New knowledge in health care needs to be implemented for continuous practice improvement. Doctor of nursing practice (DNP) programs are designed to increase clinical practice knowledge and leadership skills of graduates. This article describes an implementation science course developed in a DNP program focused on advancing graduates' capacity for health systems leadership. Curriculum and course development are presented, and the course is mapped to depict how the course objectives and assignments were aligned with DNP Essentials. Course modules with rational are described, and examples of how students implemented assignments are provided. The challenges of integrating this course into the life of the school are discussed as well as steps taken to develop faculty for this capstone learning experience. This article describes a model of using implementation science to provide DNP students an experience in designing and managing an evidence-based practice change project. (Index words: Implementation science; DNP) J Prof Nurs 31:200–207, 2015.

EVIDENCE-BASED PRACTICES (EBPs) that improve patient outcomes are available but are underused (Newhouse, Bobay, Dykes, Stevens, & Titler;, 2013), which adds to the proliferation of substantial unjustified variations in practices (Institute of Medicine, 2001; McGlynn, Asch, Adams, et al., 2003; Ward, Evans, Spies, et al., 2006). Preparing practice leaders for integrating EBPs into standard practice is an important challenge that doctor of nursing practice (DNP) programs are in the position to address. Health care agencies and the people they serve stand to benefit when DNP programs provide opportunities for students to find and apply current science through conducting practice improvement studies.

A wide range of scholarly projects are completed by DNP students in meeting the eight Essentials established by the American Association of Colleges of Nursing. A Web search of DNP programs found, for example, that projects have included developing a portfolio based on course and practicum experiences, conducting project development work such as a business plan for a home Advanced Practice Register Nurse business (Brown & Crabtree, 2013), and dissertation-type studies. DNP scholarly projects are increasingly being published in the professional literature. In a recent review of this literature, the manuscript categories included the following: designing informatics solutions in primary care and acute care settings, using evidence-based education solutions for academic and clinical learning, studies on how evidence-based research was implemented to address a specific concern, and conducting traditional research studies designed to generate clinical knowledge (Broome, Riner, & Allam, 2013). This wide range of DNP projects occurring in programs across the country suggests that further dialogue would be beneficial to identify best educational practices for practice doctorate scholarship.

When developing our DNP Program in 2008-2009, there was little published information by or about DNP graduates or programs. As program faculty, we wanted to stay close to our clinical agency partners' needs for clinical practice improvement. The question that challenged our faculty as we developed the curriculum and inquiry project was, "What knowledge and skills do the clinical agencies need from nurses with a practice doctorate to address the complex clinical and regulatory environments they are facing?" Chief nursing officers and primary care nurse administrators stated that they needed nurses with practice doctorates to develop and manage solutions to patient population problems, department-level problems such as purchasing decisions, and reimbursement issues such as

Associate Professor of Community and Health Systems, Associate Dean for Global Affairs, Indiana University Purdue University Indianapolis (IUPUI), Indianapolis, IN.

Address correspondence to Dr. Riner: Associate Professor of Community and Health Systems, Associate Dean for Global Affairs, Indiana University School of Nursing (IUSON), 1111 Middle Drive, Indianapolis, IN 46202. E-mail: mriner@iu.edu

8755-7223

Journal of Professional Nursing, Vol 31, No. 3 (May/June), 2015: pp 200–207

http://dx.doi.org/10.1016/j.profnurs.2014.11.002

those related to 30-day readmission rates. To address these identified needs, we determined that the graduate would need experience in the following: advanced literature searching and synthesizing to identify the evidence for an intervention; developing a plan to implement the solution; and carrying it out, evaluating it, and disseminating the findings. The faculty believed it was important for graduates to demonstrate leadership and accountability for the full practice improvement process. We selected implementation science as the framework for structuring the experience.

Implementation Science as a Branch of Translational Science

Translational science is a widely used term referring to moving knowledge discovery along the continuum from "bench to bedside to curbside." According to the National Center for Advancing Translational Science, it "comprises the process of turning observations in the laboratory and clinic into effective interventions that improve the health of individuals and the public—from diagnostics and therapeutics to medical procedures and behavioral changes." Translational science involves a wide range of experimental and quasi-experimental studies along the research continuum from bench science to wide-scale dissemination and adoption. A number of terms are associated with translational science, including knowledge translation, adoption of innovation, quality improvement, improvement science, implementation science, and dissemination (Newhouse et al., 2013).

Implementing new knowledge, at each stage of the discovery process, requires investigations conducted under controlled conditions. Once this efficacy is established, the intervention is ready to be tested in less controlled environments and requires a process of tailoring the intervention to the local context.

Implementation science is a form of applied research that has been linked to practice-based quality and safety improvement studies (May, 2013). Applied research is often thought of as a systematic inquiry into solving practical problems. For DNP education, this emerging field provides the conceptual link between scientific knowledge and implementing this knowledge in practice. Implementation science provides a structure and tools for increasing the rigor of studies on how evidence can be adopted into new practice settings. Implementation science can assist in identifying, describing, and explaining elements of implementation processes and their outcomes (May, 2013). Another way to think about implementation science is that it is the study of the *processes* used to make a practice change.

Consensus is growing around a workable definition of implementation science as "the study of methods, interventions, and variables that promote the uptake and use of research findings and other EBPs by individuals and organizations to improve clinical and operational decision-making in health care with the goal of improving health care quality" (Newhouse et al., 2013, p. S32). This emerging field of science provided the basis for developing the "Inquiry Project" in our DNP program focused on health systems leadership.

Curriculum Development and Course Mapping

Our school of nursing is located on an urban, research-intensive academic health campus in the Midwest. The program has a health systems leadership focus, is 37 credits, and is open to students with a nursing master's degree, including nurse practitioners, clinical nurse specialists, nurse administrators, and nursing educators. Students work in both primary and acute care roles in a wide range of facilities. The curriculum includes nine courses: Relationship-Centered Leadership in Complex Systems, Knowledge Complexity, Influencing Public Health Policy, Introduction to Nursing Informatics, Health Care Outcomes and Decision-Making, Clinical Epidemiology/Statistics in Nursing, Strategic Resource Management in Nursing and Health Systems, Inquiry I: Evidence-Based Research and Translation Science, and Inquiry II: Evidence-Based Research and Translational Science; an elective; and seven practicum credits. During the Inquiry courses, a detailed plan for an intervention targeting a problem in the students' own organization is developed, with the plan being implemented during the practicum experiences.

The Inquiry Project core was developed using strengths of our academic health science campus and faculty. It involves three components: two didactic courses and seven practicum credits. In the Inquiry I: Evidence-Based Research and Translational Science course, students do a comprehensive literature searching and synthesis assignment. They identify an important problem from their own clinical agency, conduct a literature review using the Joanna Briggs Institute resources for evaluating and synthesizing the evidence, and develop a recommended course of action to address the clinical problem.

This is followed by the Inquiry II: Evidence-Based Research and Translational Science course, which is discussed in detail in this paper. Here, students progressively develop a plan to implement the best practice he or she identified in the Inquiry I course.

Specific coursework that prepares students for their practice improvement project includes a combined epidemiology and statistics course, a graduate-level statistics course (a pre-requisite for program admission), and a course focusing on data for decision making in which students use data, conduct analyses, and make decisions for clinical care. In the Inquiry I course, students critique a large number of studies related to their issue and identify a design that fits their project. In addition to the course faculty, students are each assigned a faculty mentor and a clinical agency mentor to support them in developing their proposal and in collecting, analyzing, and interpreting the data.

The seven practicum credits provide the framework for the Inquiry Project and are taken progressively throughout the program under the supervision of a faculty advisor and agency mentor. The faculty advisor has major responsibility for supporting the student in developing, implementing, and evaluating the project and in writing the final paper. In addition, the faculty advisor works with the