TOOLBOX

What practice trends can you identify in your local, state, and regional healthcare communities? Do you view these trends as being beneficial and generating positive patient care outcomes, and do you see them as potentially harmful to consumers? Give the rationale for your answer.

The DNP Graduate as a User of Information Systems and Technology

The DNP graduate is distinguished by the ability to use information systems and technology to provide leadership within a healthcare system or an academic setting. The degree equips the graduate to design, select, and utilize information systems and technology to evaluate programs of healthcare delivery, outcomes of patient care, and systems of care. Incorporation of information systems and technology enables the graduate to use tools regarding budget and productivity as well as Internet-based tools to enhance patient care. The DNP graduate should be prepared to demonstrate both the conceptual ability and technical skills needed to develop and implement a plan for data extraction from databases containing practice information. Once such a plan is implemented, the graduate should be capable of categorizing the data extracted from such databases, using the appropriate computer program to generate statistics, and then accurately interpreting those statistical results. In addition, the graduate should be proficient in using information systems and technological resources as quality improvement initiatives are incorporated into the healthcare delivery system. Finally, the graduate should have knowledge of the standards and principles involved in the evaluation of patient care technology and the ethical, regulatory, and legal issues that surround such an evaluation (AACN, 2006).

TOOLBOX

The public is more technologically adept today than ever before. Does the area where you practice maintain a list of websites that will provide patients with accurate information that they can access once they are discharged? If not, develop this and provide it to patients upon discharge. This will ensure they absorb more accurate information during discharge teaching and also act as follow-up to answer questions that may arise. Are you familiar with the process typically used in your area of practice for discharge teaching? Would you change it if you could, and if so how?

The DNP Graduate with an Aggregate Focus

The DNP graduate who functions in an administrative, healthcare policy, informatics, or population-based specialty has an aggregate focus, which means the graduate directs his or her attention toward populations, systems, organizations, and state or national policies. Although these specialties may not have direct patient care responsibilities, there will still be the need for problem definition and the design of health

interventions at the aggregate level. The DNP graduate who opts to have an aggregate focus will, out of necessity, be required to be competent in community assessment techniques so that aggregate health or system needs can be identified (AACN, 2006).

TOOLBOX

Envision yourself functioning at the aggregate level and addressing public policy. Are there healthcare policies in your state or at the national level that you would like to address? If so, what are they, and how would you like to change them? How would these changes affect consumers of health care within the next 5 years?

The DNP Graduate's Clinical Scholarship and Evidence-Based Practice

It has been established that scholarly research is a hallmark of doctoral education. In the case of the DNP graduate, the nurse applies knowledge in the solution of a problem. This is known as the scholarship of practice in nursing. This form of scholarship highlights key activities of DNP graduates—namely, the translation of research into practice, as well as the dissemination and integration of new knowledge. Whereas research-focused nursing doctoral programs provide the research skills needed for discovery of new knowledge in the discipline, DNP programs provide the leadership skills needed for the graduate to engage in evidence-based practice. According to Pipe, Wellik, Buchda, Hansen, and Martyn (2005), evidence-based practice focuses on methods of critically appraising and applying available data and research to achieve a better understanding of clinical decision making. The method integrates research evidence with clinical expertise and patient values, which means that the best available evidence will be combined with clinical judgment. This necessitates competence in knowledge application, which consists of:

- Translating research into practice
- Evaluating practice
- Improving the reliability of healthcare practice and outcome
- Participating in collaborative research

This means DNP programs focus on applying new science and evaluating new knowledge. In addition, DNP graduates use their practice to generate evidence that will serve as parameters in guiding improvements in practice and patient care outcomes (AACN, 2006). Evidence in health care most frequently consists of:

- *Quasi-experimental studies*—Often used because they do not require randomization or control of all variables.
- *Descriptive research*—Considered to be a systematic analysis of an area of interest to the researcher; often uses survey instruments and does not necessarily examine causation.
- *Ex post facto studies*—These can be used very effectively by the DNP graduate once a healthcare trend has been identified; they involve retrospective research that allows the cause-and-effect relationship to be discovered as variables are analyzed. Once the cause-and-effect relationship can be identified, a preventive strategy can be developed (Hanchett, 2005).

Regarding evidence-based practice, the DNP graduate will be prepared to perform a critical appraisal of existing literature, apply relevant findings in the development of practice guidelines, design and implement processes to evaluate practice outcomes, and design, implement, and evaluate quality improvement methodologies. Ultimately, the graduate should be able to:

- Collect appropriate data to generate evidence for nursing practice.
- Direct the design of databases to generate evidence for practice.
- Analyze data derived from practice.
- Design evidence-based nursing interventions.
- Predict and analyze patient care outcomes.
- Examine patterns of behavior and outcomes.
- Identify gaps in the evidence for practice (AACN, 2006).

The relationship of the DNP graduate to evidence-based practice is illustrated by the definition of this type of practice. The American Association of Neuroscience Nurses defines evidence-based practice as the integration of the best, most accurate evidence available; nursing expertise in the field; and the values as well as preference of the individuals who are served or the families or even communities if they assume the client role. The idea of best practices means that care concepts, interventions, and techniques are grounded in research and therefore will promote a higher quality of client care (Mcilvoy & Hinkle, 2008). The DNP graduate addresses this concept by performing systematic reviews. This means that the findings of all methodologically sound studies that address the same research question are summarized. The systematic review treats eligible research studies as a population to be sampled and surveyed. The individual study characteristics and results will then have an abstract developed, and results will be quantified, coded, and developed into a database that can be statistically analyzed (DiCenso et al., 2000).

The systematic review can be an outstanding research tool for the DNP clinician. As a graduate of a practice-focused doctoral program, the practitioner who conducts such a review is able to make an objective assessment of the available evidence, specifically of the outcomes of particular interventions that could be implemented. The evidence will be located, evaluated, and then consolidated into a comprehensive and unbiased summary. The comprehensive nature of the review allows literature to be sorted into low, and high-quality categories. If the sheer volume of available resources is overwhelming, the quantity of literature can be reduced by:

- Reducing the time frame of the search to within the past 5 years.
- Restricting the number of databases investigated.
- Narrowing the focus of the study by selecting specific research methods.
- Reducing the search to certain journals, although the DNP clinician should recognize that this may skew results.
- Limiting searches to studies published in certain nations.
- Excluding unpublished literature (also known as gray literature) (Forward, 2002).

The integration of the process of translating evidence into practice for the DNP clinician can best be illustrated by Carper's work, which identified four essential patterns of knowing in nursing: empirical, ethical, personal, and aesthetic patterns (Pipe et al., 2005). Empirical knowing was defined as relating to factual descriptions,

explanations, and predictions; ethical knowing was thought to pertain to moral obligations, values, and desired results; personal knowing was defined as the genuine relationship that develops between each nurse and patient; and aesthetic knowing referred to the nurse's perception of the significant areas in the patient's behavior as well as the art involved in performing nursing skills. Evidence-based practice is believed to pertain most closely to empirical knowing, focusing on critical appraisal and application of available data and research in order to understand the process of clinical decision making more fully.

Evidence-based clinical practice guidelines developed as a means of influencing patient outcomes while bringing evidence-based practice into bedside nursing practice. Clinical practice guidelines are practice recommendations based on analysis of the evidence available on a specific topic and a specific patient population (Mcilvoy & Hinkle, 2008). The guidelines are developed with representation from as many stakeholders as are interested in contributing, should be tested by healthcare professionals who were not involved in their development, and should be reviewed regularly and then modified as needed in to incorporate new knowledge that is emerging in the field (DiCenso et al., 2000).

The concept of evidence-based nursing was consolidated by Flemming (1998) into five distinct stages:

1. Information needs are identified in current practice and are then translated into focused questions; the questions should be searchable and still reflect the focus on a specific patient, clinical situation, or managerial scenario.
2. Once a focused question has been identified, it is used as a basis for a literature search so that the relevant evidence from current research can be identified.
3. The relevant evidence that has been gathered undergoes critical appraisal to determine if validity is present; the extent of the generalizability of the research will also be appraised.
4. A plan of care is developed using the best available evidence and clinical expertise, as well as patient perspective.
5. A process of self-reflection, audit, and peer assessment is used to evaluate implementation of the designed plan of care.

Unless the focused question is framed correctly, the DNP graduate will have difficulty implementing evidence-based practice through the translation of evidence. An accurately framed question should consist of the clinical situation being addressed, the selected intervention, and the patient care outcome (Flemming, 1998).

TOOLBOX

Think about your current area of practice in your facility. Are there areas that you know are being implemented daily but are not grounded in evidence-based practice? If so, why do you think that these areas have continued to be utilized? What could you do as a DNP to change them? How would you initiate the change process?

The DNP Graduate's Participation in Evidence-Based Decision Making

An integral part of evidence-based practice is evidence-based decision making, and the DNP graduate is uniquely qualified to fully participate in this process. Evidence-based decision making involves combining the knowledge the DNP graduate derives from clinical practice with patient preferences and research evidence that is weighted based on its internal and external validity. It is evidence-based decision making that will allow nurses who hold a practice doctorate to actively engage with research evidence as it is accessed, appraised, and incorporated into these clinicians' professional judgment and clinical decision making. There are several components of the process of evidence-based decision making:

- Formulate a focused clinical question once there is a recognized need for additional information; the DNP clinician's capacity to fulfill a variety of roles in a facility will allow this to occur easily.
- Search for the most appropriate evidence to meet the need that has been previously identified.
- Critically appraise the evidence that has been retrieved to meet the identified need.
- Incorporate the evidence that has been critically appraised into a strategy for action.
- Evaluate the effects of decisions that are made and actions that are taken; the DNP clinician's close ties to the clinical setting will allow such evaluation to occur easily (Thompson, Cullum, McCaughan, Sheldon, & Raynor, 2004).

Each component must be fully implemented to ensure the process that is occurring is one of evidence-based decision making.

TOOLBOX

The previous toolbox asked you to identify areas in your practice area that you know are not based on evidence-based practice but have continued to be implemented. Once the change process has been initiated to ground these practices in current evidence, how do think the overall change process would be implemented?

The Process of Translating Evidence into Clinical Practice

As graduates of practice-focused doctoral programs, DNP students will be uniquely qualified to frequently progress through the process of reformulating evidence into clinical practice. As graduates of a practice-oriented doctoral program, these clinicians should be continually involved in the systematic review of research in preparation for designing a change in practice based on the validated evidence. Rosswurm and Larrabee's model proposed that six phases are involved in this process (1999):

1. *Assessing the need for a change in practice*—Determine whether there is sufficient evidence to warrant initiating the process of changing nursing

practice; this is accomplished by collecting internal data about the current practice and then comparing it to the external data (Duffy, 2004).

2. *Linking the problem with nursing interventions and patient care outcomes*—Once the clinician has determined that evidence indicates a need for a change in nursing practice, he or she must identify the nursing interventions that could potentially create the change and the outcomes that would ideally result from that change.
3. *Synthesizing the best evidence*—Conduct an exhaustive literature search so the literature can be weighed and examined with a critical eye; although a large body of literature may be identified, unless it is of the highest quality, there may not be sufficient need to progress through the process of translating that evidence into practice. The DNP graduate can carry out this step through a systematic review, because once the clinical problem has been identified, it must be stated as a focused clinical question that can be answered by searching the literature. It is the focused clinical questions that will be used to select keywords and limits for the search in order to make it more precise. Potential benefits and risks to the patient must be identified prior to implementing a change in nursing practice (Duffy, 2004).
4. *Designing the practice change*—Involve stakeholders to identify strategies that will explore the original issue as much as possible and then be used to implement it into practice; often referred to as a clinical protocol, this change should take into account the practice environment, available resources, and stakeholder feedback. The less complex the new protocol, the more likely it is to be accepted by stakeholders. Conducting a pilot test of the new protocol can make the change more acceptable because it will allow stakeholders who are practitioners to influence the formation of the change to suit their needs (Duffy, 2004).
5. *Implementing the practice change*—If the evidence supports changing nursing practice, begin implementation of the strategies that were identified in the previous step, evaluating each carefully to ensure they are indeed evidence based. During this process, follow-up reinforcement of learning should occur, as should data collection of outcomes from stakeholders, analysis of the data, and interpretation of the results to determine whether the protocol was implemented as was originally intended and the effect of the new protocol on patient care outcomes (Duffy, 2004).
6. *Integrating and maintaining the change in practice*—Once the change in nursing practice has been integrated, maintain the change through development of evaluation criteria that allow for frequent reassessment of the change and the interventions that were used to implement it. Planned change principles should be used at this point, with administration providing the infrastructure and resources needed to implement the change (Duffy, 2004).

This chapter has illustrated the ever-strengthening relationship of the DNP clinician to the research process and patient care outcomes. This practitioner's educational background and capacity for fulfilling multiple roles in the nursing community prepare the DNP graduate to provide unique contributions to nursing research in all areas of the healthcare community. Subsequent chapters will break down the specific

areas of the research process into reality-focused, manageable sections that can be implemented in any practice setting that is the focus of the DNP clinician.

Learning Enhancement Tools

1. Suppose you are a DNP graduate who is employed in a large hospital in the area of quality improvement. You have found that a large number of medication errors typically occur on a particular surgical floor when the unit admits more than six postoperative patients per shift.
   a. You are interested in developing a protocol to decrease the number of medication errors. How can this be addressed through a systematic review?
   b. After performing the systematic review, you opt to develop clinical practice guidelines. How should this process most appropriately occur?
2. Imagine you are a DNP graduate who is working in the area of risk management in a large medical practice. You find that evidence seems to indicate a need to manage preoperative anxiety more effectively in the patient population to achieve better postoperative patient outcomes. Describe the process of translating this evidence into clinical practice.
3. Imagine you are a DNP graduate who is functioning as a clinical coordinator in a large psychiatric facility that treats primarily adolescents. You note that a few of your patients seem to achieve a more manageable level of anxiety when they practice the technique of journaling. You are interested in determining whether this would be an effective technique to use with all of the adolescent patients who are experiencing a high level of anxiety. How would you want to frame the focused question regarding this clinical situation to accurately implement evidence-based nursing?
   a. Imagine further that you have developed the focused question, implemented the literature search, and begun the critical appraisal of the research evidence. You determine that validity is present, but the degree of generalizability to other patient populations will be smaller than you had originally envisioned. What should you do?
   b. Suppose you develop a plan based on the individual patient's input, available evidence, and clinical expertise. The plan is implemented, and performance is evaluated using a combination of audits and peer assessment. The evaluation indicates that the plan was not as effective as you had hoped it would be. What should you do?
4. Assume you are a DNP graduate who is functioning in an education position in a large teaching medical center that is university affiliated. You are concerned that the intravenous catheter insertion technique currently being used with new registered nurses is not as effective as other methods.
   a. How would you perform a systematic review of the evidence on this subject?
   b. Once the systematic review of the evidence is completed, how would you design new clinical practice guidelines for the facility?