

Chapter 2

Overview of Research

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Chapter Objectives

At the conclusion of this chapter, the learner will be able to

1. Discuss the evolution of evidence-based practice and nursing research
2. Identify the value of using models and frameworks in nursing research
3. Differentiate between basic and applied research
4. Delineate sources for nursing research

Key Terms

- Applied research
- Basic research
- Best practices
- Bundling
- National Center for Nursing Research (NCNR)
- National Institutes of Health (NIH)
- National Institute of Nursing Research (NINR)

Introduction

The roots of research utilization can be traced back to the time of Florence Nightingale in the mid-1800s. Over the past 150 years, nursing research has encompassed a variety of models, settings, and foci. The following historic perspective illustrates the trajectory of nursing research.

Historical Perspective

Evolution from Nightingale to Present Time

Florence Nightingale's work on sanitation in the 1800s was one of the early efforts at linking environmental variables to clinical outcomes. In the early 1900s, the focal point of nursing research was on nursing education. In the 1940s, the concentration shifted to the availability and demand for nurses in time of war. In the 1970s, clinical outcomes again reemerged as a focus for nursing research and the *Nursing Studies Index* by Virginia Henderson was produced. Today, through evidence-based practice (EBP), the focus is on the application of research findings to clinical decision making in order to improve individual patient outcomes.

Think Outside the Box

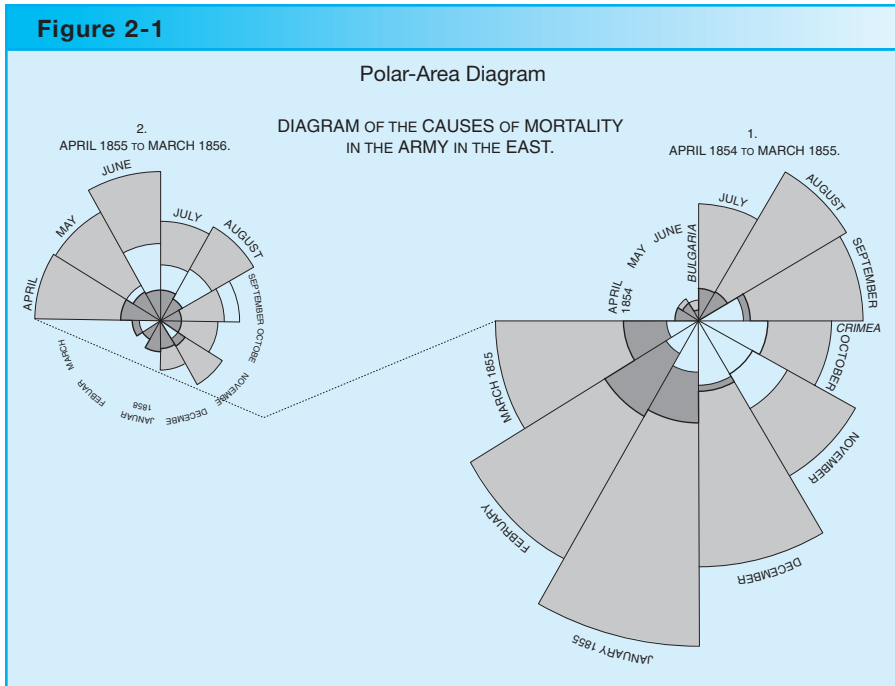


Explore the various approaches used to generate knowledge in your practice area. For example, what information has been used to determine the method of catheterizing for a laboring mother? What information serves as the basis for the range of blood sugars used within newly diagnosed elderly diabetics?

Florence Nightingale's *Notes on Matters, Affecting the Health, Efficiency and Hospital Administration of the British Army* (1858) was one of the first published works that outlined the clinical application of nursing research (*The Passionate Statistician*, 2003; Riddle, 2005). Florence Nightingale created a polar area diagram or *coxcomb* to display data regarding the causes of mortality in the British Army during the Crimean War (**Figure 2-1**). This early pie chart used color graphics to present deaths secondary to preventable disease, war injuries, and all other causes. Using this data, Nightingale calculated the mortality rate for contagious diseases such as cholera and typhus. Her statistical analysis demonstrated the need for sanitary reform in military hospitals.

The American Nursing Foundation, established in 1955, was devoted exclusively to the promotion of nursing research:

The primary objectives of the foundation were to increase public knowledge and understanding of professional nursing, prac-



Source: Riddle, L. (2005). Polar-area diagram. Biographies of women mathematicians [On-line]. Available at: <http://www.agnesscott.edu/lriddle/women/nightpiechart.htm>. Accessed January 21, 2006.

tical nursing and the arts and sciences on which the health of the American people depended. The foundation was to conduct studies, surveys and research; provide research grants to graduate nurses; make grants to public and private nonprofit educational institutions; and publish scientific, educational and literary works. (Kalisch & Kalisch, 1986, p. 651)

Federal support for nursing research began in 1946 with the creation of the Division of Nursing within the Office of the Surgeon General. In 1955, the *National Institutes of Health (NIH)* established the Nursing Research Study Section. A 1983 study entitled *Nursing and Nursing Education: Public Policy and Private Actions*, published by the Institute of Medicine, recommended that nursing research be included in the mainstream of health-related research. With growing public support, the Health Research Extension Act of 1985 authorized the development of the *National Center for Nursing Research (NCNR)* at the NIH. The NIH Revitalization Act of 1993 elevated NCNR to an NIH Institute and established the *National Institute for Nursing Research (NINR)* (NINR, 2006a).

“The National Institute for Nursing Research supports basic and clinical research to establish a scientific basis for the care of individuals

across the lifespan—from the management of the patient during illness and recovery to the reduction of risks for disease and disability, and the promotion of healthy lifestyles” (NINR, 2006b, p. 1 of 15). The strategic planning process at NINR identified areas of focus for prospective nursing research (**Table 2-1**). In April 1993, the American Nurses Association (ANA) Board of Directors adopted a position statement that acknowledged that “research based practice is essential if the nursing profession is to meet its mandate to society for effective and efficient patient care” (ANA Board of Directors, 1994, p. 1 of 5). It went on to identify the role of nursing research for the ADN, BSN, MSN, and Doctoral practitioner. The position statement outlined a process whereby clinicians identify relevant clinical problems for investigation and researchers design studies to address these problems (**Table 2-2**).

Think Outside
the Box



Discuss the barriers encountered when trying to implement evidence-based practice and research utilization in your area.

Early nursing research focused on the development of the profession of nursing, not the clinical practice of nursing. In 1970, Lysaught’s “study revealed that little nursing research has been conducted on the actual effect of nursing interventions and that nursing had few definitive guidelines for its practice. The study recommended that investigation of the impact of nursing care on the quality, effectiveness and economy of health care be conducted” (Polit & Hungler, 1978, p. 11). Thus began a new era in which clinical practice emerged as a priority for nursing research.

In the 1980s, clinical pathways were introduced into nursing practice. Clinical pathways are a plan of care developed by a multidisciplinary team that outlines the sequential care that should be provided to

Table 2-1

Areas of Focus for Nursing Research

- Chronic illnesses
- Quality and cost effectiveness of care
- Health promotion and disease prevention
- Management of symptoms
- Adaptation to new technologies
- Health disparities
- Palliative care at the end of life

Source: National Institute of Nursing Research. (2006b). *Mission Statement* [On-line]. Available at: <http://ninr.nih.gov/ninr/research/diversity/mission.html>. Accessed February 26, 2006.

Table 2-2

Research Roles at Various Levels of Nursing Education

- Associate Degree
 - Helping to identify clinical problems in nursing practice
 - Assisting with the collection of data within a structured format
 - Using nursing research findings appropriately in clinical practice in conjunction with nurses holding more advanced credentials
- Baccalaureate Degree
 - Identifying clinical problems requiring investigation
 - Assisting experienced investigators gain access to clinical sites
 - Influencing the selection of appropriate methods of data collection
 - Collecting data and implementing nursing research findings
- Master's Degree
 - Collaborating with experienced investigators in proposal development, data collection, data analysis, and interpretation
 - Appraising the clinical relevance of research findings
 - Creating a climate in the practice setting that promotes scholarly inquiry, scientific integrity, and scientific investigation of clinical nursing problems
 - Providing leadership for integrating findings into clinical practice

Source: American Nurses Association. (1993) Position statement: Education for participation in nursing research [On-line]. Available at: <http://nursingworld.org/readroom/position/research/rseducat.htm>. Accessed January 14, 2006. Adopted by the ANA April 1994.

a predictable group of patients. Early clinical pathways focused on high-volume admissions in the acute care setting, such as elective surgeries and routine obstetrical care. Clinical pathways should incorporate the applicable research. However, the intent of a clinical pathway is to manage the progression of an individual patient through a clinical event. The pathways emerged in response to shifting payment methods for health care and focused on the critical path that must be accomplished in order for the patient to have a cost-effective and timely discharge. Measures of success were, generally, a reduction in the total cost to provide care and a reduction in the average length of stay for each patient. In the late 1990s, there was a growing concern that many hospitals had adopted clinical pathways without strong evidence that they were clinically or economically effective.

The emergence of EBP takes the application of research one step further, to focus on outcome-based practices. The emphasis is now on the assessment and evaluation of clinical practices that have demonstrated their ability to improve morbidity and mortality for patients. Frequently, multiple interventions have been identified that together enhance the clinical outcome; this has come to be known as *bundling*. A bundle is a group of interventions related to a disease or care process that, when executed together, result in better outcomes than when

implemented individually. Evidence has suggested that consistently implementing these practices with all patients who have a specific disease or procedure can improve patient outcomes (Institute for Healthcare Improvement, 2006). In 2005, the Institute for Healthcare Improvement introduced care bundles for the prevention of central line infection and ventilator-acquired pneumonia as part of the 100,000 Lives Campaign. In this case, the outcome-based practices focus on a single aspect of care that is known to have serious complications.



Think Outside
the Box

What model and/or frameworks do you tend to use in your practice of nursing care?

Purpose of Nursing Research

The major rationale for conducting research is to build a body of nursing knowledge for the improvement of patient outcomes. This is accomplished by using results of research in the provision of nursing care that is based on scientific data rather than on a hunch, gut feeling, or the way I was taught. As a profession, nursing must be accountable for providing safe, cost-effective, and efficient care. EBP that incorporates research findings is a model for nurses to use in their practice.

Models and Frameworks

Nursing research provides a way to explain and predict what care we provide and why. As a result, models of nursing care and their frameworks provide opportunities for new nursing knowledge generation. As Malloch and Porter O'Grady (2006) indicated, "Professional Care Models give nurses responsibility and authority to provide patient care. In addition, nurses are accountable for coordinating care and ensuring that continuity of care is provided across the continuum. Patients' unique needs are addressed to achieve outcomes" (p. 236).

Webster's (1999) defined a model as "a preliminary pattern serving as the plan from which an item not yet constructed will be produced; a tentative description of a theory or system that accounts for all its known properties" (p. 704). Many nursing care models and research models are problem-solving processes that begin with a question. Nurses ask clinical questions on a daily basis, and research is often done on an informal basis. When a nurse observes the same phenomena occur with multiple patients with the same diagnosis over time, a pattern emerges. The nurse has, through experience, validated her observations, just not in a formal, structured research model. As Burns and Groves (2001) stated, "In the exploration of nursing research, a frame-

work is helpful to establish connections between research and the various elements of nursing” (p. 5).

Validation of Best Practices

A *best practice* is a common term used by multiple professionals and in different settings. The definition for best practices seems to be founded on the words best and practices. For this book, best practices will be defined as those nursing actions that produce the most desirable patient outcomes through scientific data.



Most of the research projects associated with evidence-based practice would tend to be examples of applied research. Brainstorm about some possible projects that would be classified as basic research examples.

For best practices, research utilization supports decision making for nursing practice through a problem-solving process. Reaffirmation through scientific data validates the desired outcomes and reinforces best practices. This is an excellent example for reality testing. There may be times when a nurse thinks or feels that the result of an action is accurate when it is not. Burns and Groves (2001) cited an example regarding patient consumption of oxygen. The sense might be that getting a patient up to the bedside commode results in more oxygen consumption than when the patient uses a bedpan. However, research has shown this to not be accurate. Thus, reality can be tested through scientific inquiry, which leads to best practice. Fineout-Overholt and Melnyk (2005) suggested that best practice is a term used by more than health care providers. They suggested that “without well-designed research, best practices cannot claim universal application” (p. 27), and consensus builds best practices that are achieved through evidence. Simpson (2005) suggested that through EBP, nurses could overlook the truth about nursing practice. Nurses need to look at what practice is and what is really done. Perhaps, research and practice need to merge to have a major impact on practice. Through this merger, practice and research would combine to actually become a validated best practice.

Basic versus Applied Research

Basic research can be defined as research to gain knowledge for knowledge’s sake (Brockopp & Hastings-Tolsma, 2003; Burns & Grove, 2001; Fain, 1999). Sometimes, basic research is also called bench research, such as laboratory experiments regarding cell structure. Simply stated,

basic research is often useful later when, for example, a researcher addresses how a new drug being tested affects a cell's structure.



Using Florence Nightingale's ideas, apply these ideas to research and evidence-based practice.

Applied research directly impacts practice and modifies current practice. Most nursing research is applied research that assists in decision making regarding nursing care. This can also include the development of new approaches for care. Modification, development, and evaluation of nursing care of best practice are the heart of EBP. Applied research builds a body of knowledge for nursing practice.

Sources for Nursing Research

Most nursing research comes from two primary sources (i.e., academia and health care settings). One might expect that nurses doing research in academic settings would only focus only on educational research and those in health care would only focus only on practice settings. Although that may be true in some cases, most often both arenas produce research for both education and practice, because they are closely aligned with one another. This is most evident in the nursing position papers published by two major nursing organizations.

Academia

A major thrust of research in education is the evaluation of programs, technologies, and instructional design. Research in education flourished from the mid-1980s until about 2001, when funding for nursing education withered. An Act of Congress specified that no funding from the National Center for Nursing Research (NCNR) could be distributed for research in nursing education (Diekelmann, 2001). As a result, nurse educators had to turn to funding from outside of the discipline, where the competition was intense. Consequently, little nursing education research was conducted. Nurse educator researchers turned to research in clinical practice. Although that had some positive gains for clinical practice, it drastically impacted the research needed for innovative programs, teaching/learning activities, and other aspects of nursing education.

Since 2000, when the National League for Nursing (NLN) reorganized, increased emphasis and financial support has been directed to research in nursing education. The NLN recognized the need for a “quality nursing education that prepares the nursing workforce to meet the

needs of diverse populations in an ever changing healthcare environment . . . and change the landscape related to funding for nursing education research . . . to lead in promoting evidence-based teaching in nursing . . .” (NLN, n.d., p. 1 of 2). This commitment to nursing education research is also expressed in the NLN mission and goal statements. Nurse educators have recognized the need to continue seeking external funds from outside of the discipline. Grant funding has also come from several governmental agencies as well as foundations. The current impetus for funding from outside sources is a direct result of the nursing shortage and from reports on health care such as the Institute of Medicine (IOM). Because the nursing shortage appears to be one that will last for years to come, research in nursing education has a promising future. Again, the relationship of EBP will remain in the forefront, for research in nursing education.

Think Outside
the Box



There are many nursing theories available within the literature. Search the literature to find nursing research utilization of a selected theory.

Health Care Settings

In 1999, Marita Titler observed that outcomes achieved in a research study might not be replicated with multiple caregivers in the natural clinical setting. The variable demands on the bedside nurse and multiple comorbidities that exist in the hospitalized patient can make it difficult to replicate findings. Cronenwett (2001) noted that “evidence for practice mounts slowly over time, as scientists discover first what works in controlled environments and second what works in daily clinical practice” (p. 3). Today, it is our challenge to move from a focus solely on research development to the use of valid and reliable evidence in clinical practice. Nurses have been identified as champions in the adoption of EBP. It is equally important that health care institutions implement mechanisms that diffuse available evidence into the practice environment.

Summary Points

1. Florence Nightingale's work emphasized clinical applications of nursing research through the creation a polar area diagram.
2. From 1900–1940, nursing research focused on nursing education.
3. In the 1950s, the first issue of *Nursing Research* was published with the notion to share research information with colleagues. Also, the American Nursing Foundation was established to promote nursing research.
4. The 1960s focused on models and frameworks of nursing practice.
5. The 1970s produced the *Nursing Studies Index* by Virginia Henderson.
6. In the 1980s, the IOM recommended that nursing research be included in health-related research. In addition, the National Center for Nursing was established.
7. In the 1990s and 2000, both the NLN and ANA developed position papers on research-based practice.
8. Models and frameworks of professional practice are validated through research.
9. EBP incorporates research as a professional care model.
10. Basic research is gaining knowledge for knowledge's sake.
11. Applied research directly impacts practice.
12. Sources for research in nursing can be found in academic and health care settings.



RED FLAGS

- Research projects should be grounded by a model or framework to anchor the concepts identified within the project.
- Assumptions about best practice must contain scientific evidence and not just be based on everyday consensus of opinion or intuition.

Case Scenario

Incorporation of EBP into bedside nursing generally requires a change in nursing practice. Change theory models identify that each change process has potential barriers to effective implementation of the desired change. In order to more effectively implement EBP, one must identify the barriers to implementation of change. Funk et al. (2005) conducted a nursing research project in order to better understand barriers to implementation of nursing research among inpatient nursing units at a large university-affiliated Magnet hospital.

“The purpose of this study was to examine the effect of multifaceted organizational strategies on registered nurses’ (RNs) use of research findings to change practice in an academic hospital. The specific aims were to (1) identify nurses’ attitudes and perceptions about organizational culture and research utilization, (2) identify perceived barriers and facilitators to nurses’ use of research in practice, and (3) determine which factors are correlated with research utilization” (Funk et al., 2005, p. 121).

Survey tools, including the BARRIERS to Research Utilization Scale and the Research Factor Questionnaire, were used to gather data. The majority of respondents (83%) were registered nurses who held a baccalaureate or advance degree in nursing. The results demonstrated an improvement in nurses’ perception after implementation of multifaceted interventions. The authors also identified journal club participation as a major strategy to facilitate the use of research in clinical nursing practice.

Case Scenario Questions

- How might the findings vary in an academic teaching facility that was not a Magnet hospital?
- How might the findings vary in a community-based hospital setting?
- How might the findings vary in an outpatient or procedural-based nursing practice?
- How might the findings vary in a hospital setting that has primarily associate degree nursing graduates?
- What would you anticipate would be the findings in your own clinical practice environment?
- If you implemented a Journal Club, do you believe that would increase the use of research findings in your clinical practice area?

Suggested Readings

Booth, W. C., Colomb, G. G., & Williams, J. M. (2003). *The craft of research*. (2nd ed.). Chicago: University of Chicago.

Dimsdale, K., & Kitner, M. (2004). Becoming an educated consumer of research: A quick look at the basic methodologies of research design. Retrieved from <http://www.air.org/publications/documents/Becoming%20an%20Educated%20Consumer%20of%20Research.pdf>.

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Multiple Choice Questions

- Question 1:** The research role of the baccalaureate degree nurse includes
- A. Identifying clinical problems that require investigation and assisting experienced investigators to gain access to clinical sites and collecting data
 - B. Creating a climate in the practice setting that promotes scholarly inquiry, scientific integrity, and scientific investigation of clinical nursing problems
 - C. Collaborating with experienced investigators in proposal development, data collection, data analysis, and interpretation
 - D. Providing leadership in integrating research into practice
- Question 2:** Potential areas of nursing research identified by the National Institute for Nursing Research include
- A. Stem cell research
 - B. Application of pharmaceuticals in clinical practice
 - C. Chronic illness, health promotion, disease prevention, and end-of-life care
 - D. Health care literacy
- Question 3:** The first issue of *Nursing Research* was published in
- A. 1858
 - B. 1952
 - C. 1985
 - D. 1992
- Question 4:** The *Nursing Studies Index*, the first annotated index of nursing research, was the work of
- A. Florence Nightingale
 - B. Virginia Henderson
 - C. Marita Titler
 - D. Dorothea Orem
- Question 5:** The American Nurses Association position statement acknowledges that
- A. Researchers identify clinical problems and study them
 - B. Faculty identify clinical problems and study them
 - C. Clinicians identify clinical problems and researchers design them
 - D. Faculty and researchers identify clinical problems and study them
- Question 6:** Clinical pathways are developed by
- A. Nursing teams
 - B. Physician teams
 - C. Educator teams
 - D. Multidisciplinary teams

Question 7: A *bundle* is a group of interventions related to a disease or care process that

- A. Results in better outcomes than when implemented together
- B. Results in diverse outcomes when implemented individually
- C. Results in confusing information about a single disease or care process
- D. Provides insufficient evidence to alter clinical practice in individualized interventions

Question 8: Professional care models give nurses

- A. Accountability
- B. Authority
- C. Responsibility
- D. All of the above

Question 9: Best practice is an excellent example of what kind of testing?

- A. Cognitive
- B. Reality
- C. Didactic
- D. Evaluation

Question 10: Basic research is also known as bench research and is defined as research to gain knowledge for

- A. Use in academia
- B. Use in clinical practice
- C. Knowledge's sake
- D. Use in biochemistry

Question 11: Applied research builds a body of knowledge for nursing practice because it is the basis of

- A. Evidence-based practice
- B. Clinical pathways
- C. Nursing process
- D. Nursing diagnosis

Question 12: Sources for nursing research come primarily from two sources:

- A. Business and occupational settings
- B. Academic and health care settings
- C. Both urban and rural settings
- D. Pharmaceutical and business settings

Question 13: Best practice in nursing can be defined as

- A. A well-written plan of nursing care
- B. A systems approach to nursing care
- C. Nursing actions producing desirable patient outcomes
- D. A way for nurses to justify their care

Discussion Questions

Discussion Question 1:

Identify potential opportunities for you to use EBP in your current clinical setting.

Discussion Question 2:

Identify barriers to implementing EBP in your clinical setting.

Discussion Question 3:

Identify three clinical problems requiring investigation in your nursing practice. What steps might you take to begin to explore these identified problem areas?