

## CHAPTER 3

# Research and Evidence-Based Practice

“By changing nothing, we hang on to what we understand, even if it is the bars of our own jail.”

—John LeCarre

### Competencies

- 1 Explain the basis for research and knowledge development in nursing.
- 2 Describe the steps in the research process.
- 3 Explain the responsibilities of the researcher in guarding the rights of research participants and others who assist in the research study.
- 4 Identify the various applications of nursing research in nursing practice.
- 5 Describe how evidence-based practice is used to guide clinical decision making.
- 6 Discuss the trends occurring in health care that will influence the priorities for nursing research.

## KEY TERMS

abstract  
 concepts  
 conceptual framework  
 conceptualization  
 construct  
 dependent variable  
 evidence-based practice  
 full disclosure  
 hypothesis  
 independent variable  
 informed consent  
 nursing research  
 primary source  
 qualitative analysis  
 qualitative research  
 quantitative research  
 recontextualizing  
 research  
 research design  
 secondary source  
 theory  
 value  
 variable

This chapter explores the scientific foundation on which the knowledge base of the profession has been and is being built. **Nursing research** is a “scientific process that validates and refines existing knowledge and generates new knowledge that directly and indirectly influences nursing practice” (Burns & Grove, 2001, p. 4). **Evidence-based practice** is using the best evidence available to guide clinical decision making. The identification of the knowledge base for nursing practice contributes to achieving client outcomes and making nursing practice credible. The emphasis on quality care based on evidence and research is an increasing focus in all areas of health care. The challenge to nurses is to determine the interrelatedness of nursing research to evidence-based practice: Does a solid research base exist that will provide evidence of the nursing actions that are effective in promoting positive patient outcomes?

### Research: Substantiating the Science of Nursing

Nursing is a profession characterized by educational standards, autonomy, socialization, an established knowledge base, licensure, formal entry examinations,

code of ethics, technical expertise, professional standards, altruistic service, and public trust. The main characteristics of a profession are established, specialized training in a body of abstract knowledge and a collectivity of service orientation.

The science of nursing knowledge is established by the same systematic, investigative process used by all science-based disciplines, the research process. **Research** is a systematic method of exploring, describing, explaining, relating, or establishing the existence of a phenomenon, the factors that cause changes in the phenomenon, and how the phenomenon influences other phenomena. Nursing practice activities are substantiated as predicting valid and reliable outcomes for clients (the individual, family, group, or community) only after a body of knowledge has been established and confirmed by numerous research efforts.

### Historical Development

Nursing research is aligned with the founder of modern nursing, Florence Nightingale. Nightingale “believed that through observation, nurses could best determine care for patients. This early emphasis on systematic observation, as opposed to a trial-and-error approach in providing patient care, planted the seeds for the evolution of nursing science—a unique body of nursing knowledge” (Brockopp & Hastings-Tolsma, 2003, p. 5). The groundwork established by Nightingale for using research to direct client care was not sustained by subsequent nursing leaders because of two forces that had a direct impact on nursing’s future. First, societal norms basically excluded women from becoming scientists; therefore, initiating or participating in scientific discovery (research) was not an option for women. The second force dealt with the “training” as opposed to the “education” of nurses.

In 1923 Teacher’s College at Columbus University offered the first educational doctoral program for nurses. The first master’s of nursing degree was offered at Yale University in 1929. The placement of nursing education in the university setting is credited to three key studies that addressed educational reform in nursing: the Nutting report, 1912; the Goldmark report, 1923; and the Burgess report, 1926. In 1932 the Association of Collegiate Schools of Nursing (ACSN) was organized to promote the conduct of research to improve education and practice. The ACSN established the first research journal in nursing, *Nursing Research*, in 1952.

Research activities during the 1940s and early 1950s focused on the organization and delivery of nursing services: staffing patterns; nursing personnel and

patient satisfaction; and patient classification systems. Care delivery systems such as comprehensive care, home care, and progressive care were evaluated. Results of these evaluations laid the foundation for the development of self-study manuals that were the precursors of today's quality assurance manuals.

The American Nurses Association (ANA) contributed to the advancement of nursing research. In 1950 the ANA sponsored a 5-year study on nursing functions and activities; the findings were reported in a document entitled *Twenty Thousand Nurses Tell Their Story*. This study benchmarked the development of ANA statements on functions, standards, and qualifications for professional nurses in 1959. Concurrently clinical research began expanding as nursing specialty groups developed standards of care.

Nursing research in the late 1950s and early 1960s focused on the effective educational preparation of professional nurses. One outcome was the development of a 2-year associate degree nursing program in the junior college setting by Montag. During this era several organizations were established that furthered nursing research by either promoting, expanding, or disseminating study findings: the Institute for Research and Service in Nursing Education at Teacher's College, 1952; the American Nurse's Foundation, 1955; ANA Committee on Research and Studies, 1956; Department of Nursing Research, Walter Reed Army Hospital, 1957; Southern Regional Educational Board (SREB), 1957; Western Interstate Commission on Higher Education (WICHE), 1957; and the New England Board of Higher Education (NEBHE), 1957. The *Nursing Research* journal was established in 1952 to communicate nurses' research and scholarly activity.

During the late 1960s and 1970s the nursing profession initiated many scholarly endeavors: the development of conceptual models and theories; clinical studies on quality care, primary patient care, and the nursing process; educational studies that evaluated teaching methods and student learning experiences; and the first Nursing Diagnosis Conference in 1973. The ANA established the Commission on Nursing Education in 1970 and the Council of Nurse Researchers in 1972. As enrollments in graduate nursing programs increased at both the master's and doctoral levels, the dissemination of research findings was an issue in the 1970s.

Sigma Theta Tau, the international honor society in nursing, was founded in 1922 and began publishing *Image: Journal of Nursing Scholarship* in 1967 to communicate research findings. The society's purpose is to advance scholarship in nursing by promoting the conduct, communication, and utilization of research in nursing.

The movement of the 1980s and 1990s focused on clinical nursing research as many nurses obtained master's and doctoral degrees, and postdoctoral education was encouraged for nurse researchers. The number of nursing research journals increased during the 1970s and 1980s to include journals such as *Research in Nursing and Health*, *Advances in Nursing Science*, *Applied Nursing Research*, and *Nursing Science Quarterly*.

Federal involvement in nursing research dates back to 1946 with the establishment of the Division of Nursing within the Office of the Surgeon General. In 1955, the first extramural nursing research program was established in the Research Grants and Fellowship Branch of the Division of Nursing Resources, and the National Institutes of Health (NIH) established the Nursing Research Section within the Division of Research Grants to conduct scientific review in the field of nursing. The impetus for establishing the National Institute of Nursing Research (NINR) came from the findings of two federal studies:

1. The 1983 report by the Institute of Medicine recommending that nursing research be included in the mainstream of biomedical and behavioral science
2. The 1984 NIH Task Force study found that nursing research activities to be relevant to the NIH mission

In 1986 these findings led to legislative action that established the National Center for Nursing Research (NCNR) at NIH. The NIH Revitalization Act of 1993 was signed into law and changed the NCNR to the National Institute of Nursing Research (NINR). The NINR (2003) supports clinical and basic research to establish a scientific basis for the care of individuals across the life span, and may include families within a community context. According to its mandate, the Institute seeks to understand and ease the symptoms of acute and chronic illness, to prevent or delay the onset of disease or disability or slow its progression, to find effective approaches to achieving and sustaining good health, and to improve the clinical settings in which care is provided. Research involves clinical care in a variety of settings including the community and home in addition to more traditional health care sites.

Panels of nurse researchers convene to develop research priorities for the NINR; see the accompanying display on the five NINR research themes for 2003. All of the research themes address: ethnic and cultural sensitivities; family and community considerations; a multidisciplinary approach to research; biological and behavioral mechanisms and their interrelationships; the clinical setting in which care is provided; and the cost-effectiveness of research interventions.

## THE NATIONAL INSTITUTE OF NURSING RESEARCH THEMES FOR 2003

1. Changing Lifestyle Behaviors for Better Health
2. Managing the Effects of Chronic Illness to Improve Quality of Life
3. Identifying Effective Strategies to Reduce Health Disparities
4. Harnessing Advanced Technologies to Serve Human Needs
5. Enhancing the End-of-Life Experience for Patients and Their Families

Source: National Institute of Nursing Research (NINR). (2003). NINR research themes for the future. National Institutes of Health, Bethesda, MD. Retrieved from <http://www.nih.gov/ninr/NINR/2003>.

## Framework

Knowledge gained from both nursing research and practice is necessary to support the predictable outcomes of nursing care. Research used in nursing comes from nursing as well as other disciplines such as psychology, education, sociology, biology, and anthropology. Nursing research explores the many pathways through which scientific and practical knowledge regarding nursing care is established.

## Research Process

The person conducting the research is called *researcher*, *investigator*, or *scientist*. When a researcher poses a problem or answers a question using the *scientific approach*, it is called a study, an investigation, or a research project. The people who are being studied are called *subjects* or *study participants*.

Scientific research is mainly concerned with vehicles of thought defined as **concepts**. The process of developing and refining concepts is referred to as **conceptualization**. A **construct** is an abstraction or mental representation inferred from situations, events, or behaviors. Constructs are different from concepts in that the constructs are deliberately invented (or constructed) by researchers for a specific scientific purpose. These concepts or constructs are ideas that formulate a **theory** (a set of concepts and propositions that provide an orderly way to view phenomena). “In a theory, concepts (or constructs) are knitted together into an orderly system to explain the way in which our world and the people in it function” (Polit, Beck, & Hungler, 2001, p. 22).

Nurse researchers can use one of two broad approaches to gather and analyze scientific information:

- ✦ **Quantitative research:** The systematic collection of numerical information, often under conditions of considerable control, and the analysis of the information using statistical procedures
- ✦ **Qualitative research:** The systematic collection and analysis of more subjective narrative materials, using procedures in which there tends to be a minimum of researcher-imposed control. (Polit, Beck, & Hungler, 2001, p. 26)

See Table 3-1 for a comparison of the major characteristics of quantitative and qualitative research.

The scientific method requires an exact, orderly, and objective approach of acquiring knowledge. Controlled methods are used to study problems and test the **hypothesis** (statement of an asserted relationship between two or more variables). A **variable** is anything that may differ from the norm. The two types of variables are independent and dependent.

The **independent variable** (criterion variable) is that variable that is believed to cause or influence the **dependent variable**, which is the outcome variable of interest and is the variable that is hypothesized to depend on or be caused by or predicted by the independent variable (Polit, Beck, & Hungler, 2001). For example, if the question reads *to what extent does age predict recovery from surgical anesthesia relative to when perioperative instructions were first given*, the independent variable is age and the dependent variable is recovery from surgical anesthesia relative to when perioperative instructions were first given. **Value** is the variation of the variable. The values of the independent variable are actual ages of surgical clients, and the values of the dependent variable are when instructions were first given.

There are multiple ways in which nurses establish the sources and the realm of knowledge about nursing, human responses, diagnoses, and treatments. Burns and Grove (2001) describe how nursing has historically acquired knowledge:

- ✦ **Traditions:** basing practice on customs and past trends
- ✦ **Authority:** crediting another person as the source of information
- ✦ **Borrowing:** using knowledge from other disciplines to guide nursing practice
- ✦ **Trial and error:** using unknown outcomes in a situation of uncertainty
- ✦ **Personal experience:** gaining knowledge by being personally involved in an event, situation, or circumstance

**Table 3-1**  
**Major Characteristics: Quantitative and Qualitative Research**

Quantitative Research	Qualitative Research
Hard science	Soft science
Purpose: test theory	Purpose: develop sensitizing concepts, create theory
Focus: concise and narrow	Focus: complete and broad
Reasoning: deductive	Reasoning: inductive
Design: reductionist	Design: holistic
Data collection: control; instruments	Data collection: shared interpretation; communication and observation
Basic element of analysis: numbers; statistical analysis	Basic element of analysis: words; individual interpretation
Reporting of findings: generalization; objective; formal style	Reporting of findings: uniqueness; subjective; rich narrative; expressive language

Source: Adapted from Burns, N., & Grove, S. K. (2001). *The practice of nursing research (4th ed.)*. Philadelphia: W. B. Saunders; Dempsey, P., & Dempsey A. (2000). *Using nursing research: Process, critical evaluation and utilization (5th ed.)*. Philadelphia: Lippincott.

- ❖ *Role modeling and mentorship*: imitating the behaviors of an exemplar
- ❖ *Intuition*: being guided by a feeling or sense that cannot be logically explained
- ❖ *Reasoning*: processing and organizing ideas in order to reach conclusions
- ❖ *Research*: validating and refining existing knowledge and generating new knowledge

Carper (1978, 1992) describes four fundamental patterns of knowing:

- ❖ *Empirical*: using research to explain, describe, and predict
- ❖ *Ethical*: extending knowledge of valuing, clarifying, and advocating
- ❖ *Personal*: encountering and focusing on self and others
- ❖ *Esthetics*: interpreting, engaging, and envisioning clues to knowledge

The research process is based on sequential, interrelated steps; see the accompanying display on the steps in the research process.

Once the researcher has developed the conceptual framework, the research literature is reviewed to provide a foundation on which to base new knowledge. In selecting a research design, the researcher determines the methods to be used to address the research question and test the hypothesis, the specific population to be studied, and how the data will be collected; see the accompanying display on types of research design.

Clearly, the contemporary thought on knowledge generation incorporates a variety of sources of data collection,

### STEPS IN THE RESEARCH PROCESS

- ⊙ Formulating a research question or problem
- ⊙ Defining the purpose of the study
- ⊙ Reviewing relevant literature
- ⊙ Developing a **conceptual framework** (structure that links global concepts together to form a unified whole)
- ⊙ Developing research objectives, questions, and hypotheses
- ⊙ Defining research variables
- ⊙ Selecting a **research design** (overall plan used to conduct the research; see the accompanying display for types of research design)
- ⊙ Defining the population, sample, and setting
- ⊙ Conducting a pilot study
- ⊙ Collecting data
- ⊙ Analyzing data
- ⊙ Communicating research findings, their implications, and the limitations of the study

each with its own strengths and weaknesses. However, knowledge in nursing is developed and used most effectively through the combination of nursing theory, research, and practice.

Following data collection, the researcher subjects the data to analysis in an orderly fashion so that patterns and relationships can be discerned. **Qualitative analysis** involves “four types of intellectual processes:

## TYPES OF RESEARCH DESIGN

- ⊙ **Historical:** Systematic investigation of a past event using relevant sources to describe or explain the event
- ⊙ **Exploratory:** Preliminary investigation designed to develop or refine hypotheses or to test the data collection methods
- ⊙ **Evaluative:** Systematic investigation of how well a program, practice, or policy is working
- ⊙ **Descriptive:** Investigations that have as their main objective the accurate portrayal of the characteristics of persons, groups, or situations and the frequency with which certain phenomena occur
- ⊙ **Experimental:** Research studies in which the investigator controls (manipulates) the independent variable and randomly assigns subjects to different conditions
- ⊙ **Quasi-experimental:** Studies that deviate from the methods of the experimental component in that subjects cannot be randomly assigned to treatment conditions even though the researcher manipulates the independent variable and exercises certain controls to enhance the internal validity of the results

*Source: Adapted from Polit, D. F., & Hungler, B. P. (2001). Nursing research: Principles and methods (6th ed.). Philadelphia: Lippincott.*

comprehending, synthesizing, theorizing, and **recontextualizing** (exploration of the developed theory in terms of its applicability to other settings or groups)” (Polit, Beck, & Hungler, 2001, p. 400) whereas quantitative information is usually analyzed through statistical procedures. If the data support the research hypothesis, the findings are reported in a straightforward fashion; however, if the results fail to support the hypothesis, the researcher must explain the possible reasons for this failure, for example, problems with the research method (use of inappropriate tools for data collection). The research findings can be communicated in various forms such as dissertations and journal articles. Usually, research reports discuss how the findings can be incorporated into the practice of nursing.

## Roles

Becoming a nurse researcher requires education and experience in the process of scientific inquiry. That process is then combined with the nurse’s already

## REFLECTIVE THINKING

### Ways of Knowing

Nurses use scientific and “other ways of knowing” to measure the effectiveness of nursing interventions.

**Name and describe three “other ways of knowing” that you use in your personal life to solve problems.**

**What are the advantages and disadvantages of each method you use?**

**How can “other ways of knowing” be used by nurses to measure the client’s situation or the outcome of the nursing activity applied to the situation?**

established clinical experience and expertise. A nurse scientist is an RN with a strong clinical background who has also been educated at the doctoral level to conduct research. However, nurses participate as consumers and critics of research by conducting the important work of translating, applying, and evaluating the new knowledge with clients and systems. Nurses also participate on research teams or with research protocols to plan, apply, collect data, and evaluate the process.

Each of these roles (nurse scientist, principal investigator, research team member, research consumer, and advocate for research clients) offers a substantial contribution to the process of scientific knowledge development in nursing and health care. Interdisciplinary experiences can further enrich the nurse’s understanding of the concept or phenomenon and add to the research team’s perspective of the research project.

## Rights

During the research design phase of the process, the researcher must determine how to safeguard the rights of the research participants. An important role of the nurse researcher is that of advocate for the clients’ rights during the process; see the accompanying display regarding the human rights that require protection during research.

Obtaining **informed consent** requires that the researcher provide **full disclosure** (communication of complete information to potential research subjects regarding the nature of the study, the subject’s right to refuse participation, and the likely risks and benefits that would be incurred) (Polit, Beck, & Hungler, 2001). The nature, seriousness, and likelihood of risks (physical, psychological, social, and legal) are explained to the

## PROTECTING HUMAN RIGHTS IN RESEARCH

- ⊙ **Self-determination:** The person has the right to control his or her own destiny.
- ⊙ **Privacy:** The person has to determine the time, extent, and general circumstances under which private information will be shared with or withheld from others.
- ⊙ **Anonymity:** Data collected will be kept confidential.
- ⊙ **Fair treatment:** The person should be treated fairly and should receive what he or she is due or owed.
- ⊙ **Protection from discomfort and harm:** Based on the principle of beneficence (one should do good and, above all, do no harm), the person should be protected from physical, emotional, social, and economic discomfort and harm.
- ⊙ **Informed consent:** The person understands the reason for the proposed intervention and its benefits and risks, and agrees to the treatment by signing a consent form.

Source: Adapted from Burns, N., & Grove, S. K. (2001). *The practice of nursing research (4th ed.)*. Philadelphia: W. B. Saunders.

## REFLECTIVE THINKING

### Responsibility in Nursing Research

**What should a nurse do when a risk factor has not been fully explained to a client who has agreed to participate in a study? You are a staff nurse working at a medical center where it is common practice for the nurses to participate in research studies that use investigational drugs. In reading the accompanying literature on the investigational drug being used in this particular study, you discover that the risk for infertility has not been addressed in the informed consent. Although you realize that you do not have to participate in the research, what should you do to protect the client's rights?**

participants. The researcher must also identify what precautions will be taken to minimize the risks. Protection of subjects requires that the potential benefits outweigh potential risks.

Nurses have an obligation to collaborate in the research, provided the researcher has followed proper protocols. The researcher must obtain permission from the agency to use its facility as part of the research setting. Staff nurses who are expected to participate in the research process must have an adequate understanding of the nature of the study. Likewise, the staff nurse has the right to refuse to participate in the study.

## Research Utilization

Research utilization refers to the use of research findings in practice to improve care. Research utilization occurs at three levels—instrumental, conceptual, and symbolic:

1. *Instrumental* utilization is the direct, explicit application of knowledge gained from research to change practice (Gills & Jackson, 2002).
2. *Conceptual* utilization refers to the use of findings to enhance one's understanding of a problem or issue in nursing (Gills & Jackson, 2002).
3. *Symbolic* utilization is the use of evidence to change minds of other people, usually decision makers (Profetto-McGrath, Hesketh, Lang, & Estabrooks, 2003).

Instrumental research utilization allows the nurse to change nursing practice, for example, by adopting new nursing interventions, procedures, clinical protocols, or guidelines. In conceptual research utilization, the nurse uses the knowledge by thinking about a situation, problem, or phenomenon to provide different alternatives and possibilities in nursing situations. With symbolic research utilization, the nurse uses research findings to influence others to make changes in conditions, policies, or practices relevant to nurses and clients, or the health of clients (Profetto-McGrath, Hesketh, Lang, & Estabrooks, 2003); see the accompanying Research Focus.

To bridge the gap between nursing research and nursing practice, several research utilization models have been developed to promote quality care. The Western Interstate Commission for Higher Education (WICHE) Regional Program for Nursing Research Development was the first federally funded research utilization project. The 6-year WICHE project studied the feasibility of fostering research activities through regional collaborative activities. There are five components of this model:

1. Definition of nursing care problem
2. Retrieval of relevant research
3. Critical review of the research
4. Development of research-based plan of care
5. Evaluation of the effects of change

The final report from the WICHE project indicated that the project was successful in increasing research utilization; however, there were a limited number of scientifically sound, reliable nursing studies with clearly identified implications for nursing care.

A 5-year project, awarded to the Michigan Nurses Association by the Division of Nursing in the 1970s, was the Conduct and Utilization of Research in Nursing (CURN). The purpose of this federally funded project was

to develop research-based protocols for clinical practice. The five components of the CURN model include:

1. Identification of research studies and establishment of a research base
2. Transformation of findings into research-based protocols
3. Transformation of protocols into specific nursing interventions
4. Clinical trails in the practice setting
5. Evaluation of the research-based practice

The CURN project concluded that research utilization by practicing nurses is feasible, but only if it is relevant to practice and the results are broadly disseminated.

Over the past decade other utilization projects have been undertaken such as the Iowa model, the Nursing Child Assessment Satellite Training (NCAST) model, the Dracup-Breu model, the Stetler model, and the Horne model. In the 1990s California developed the Orange County Research Utilization in Nursing (OCRUN) project to focus on building organizational capacity as a tool for increasing research utilization. Over a 3-year period, nearly 400 nurses participated in continuing education courses that focused on the development of research utilization competency (Rutledge & Donaldson, 1995).

## RESEARCH FOCUS

**Title of Study** “A Study of Critical Thinking and Research Utilization among Nurses.”

**Author** J. Profetto-McGrath, K. Hesketh, S. Lang, and C. Estabrooks

**Purpose** To identify critical thinking dispositions and research utilization habits and their relationships in a convenience sample of 143 nurses working on two acute-care surgical units and five pediatric units in four tertiary-care hospitals.

**Methods** Using the research design of two previous comparative research utilization studies, the California Critical Thinking Dispositions Inventory (CCTDI) tool was distributed to the 143 nurses to complete on their own time. Seven critical thinking dispositions were measured by the CCTDI: truth-seeking, open-mindedness, analyticity, systematicity, critical thinking self-confidence, inquisitiveness, and maturity.

**Findings** Based on 141 valid responses, the results indicated a significant positive correlation between the total critical thinking disposition score and the overall research utilization. Overall critical thinking disposition correlated significantly with instrumental and conceptual research utilization, but not with symbolic research utilization.

**Implications** If the nursing profession is committed to basing practice on research evidence, these findings indicate a need to foster critical thinking in both nursing students and practicing nurses.

*Source: Profetto-McGrath, J., Hesketh, K., Lang, S., & Estabrooks, C. (2003). A study of critical thinking and research utilization among nurses. Western Journal of Nursing Research, 25(3), 322–337.*

## Barriers to Utilizing Nursing Research

Polit, Beck, and Hungler (2001) identify the following barriers to utilizing nursing research:

- ✦ Research itself: inadequate scientific base
- ✦ Practicing nurses: educational preparation with limited exposure to research utilization, and resistance to change
- ✦ Organizational settings: unfavorable organizational climates, and resource constraints
- ✦ Nursing profession: limited communication and collaboration between practitioners and researchers

Gills and Jackson (2002) address the future of research utilization as positive: “Given today’s increasing emphasis on quality, evidence-based practice, accountability, and fiscal responsibility in health care, it is likely that research utilization will be a major focus of all health professionals in the future” (p. 647).

In 1992, the Agency for Health Care Policy and Research (AHCPR) within the U.S. Department of Health and Human Services, renamed the Agency for Healthcare Research and Quality (AHRQ), convened a panel of experts to summarize the state-of-the-art research on certain topics and to develop clinical prac-



## ABSTRACT CONTENTS

### Title of the Study

### Introduction of the Scientific Problem

- ⊙ Statement of the problem and purpose
- ⊙ Identification of the framework

### Methodology

- ⊙ Design
- ⊙ Sample size
- ⊙ Identification of data analysis methods

### Results

- ⊙ Major findings
- ⊙ Conclusions
- ⊙ Implications for nursing
- ⊙ Recommendations for further research

tice guidelines. Guidelines have been published on such topics as pain management in infant and children, prediction and prevention of pressure sores in adults, and identification and treatment of urinary incontinence. These guidelines, which are based on evidence and provide the consumer with information directly related to the clinical practice guidelines, are available at AHRQ's website. The future of nursing research utilization will require commitment and collaboration among researchers, practicing nurses, organizations that train and employ nurses, and the leadership of the nursing profession.

## Nursing Students

Accessing nursing research can be a challenge to students. "Nursing students are often intimidated by the research process" (Morse, Oleson, Duffy, Patek, & Sohr, 1996, p. 148). Nursing students are exposed to research in varying degrees as determined by the program's curriculum.

Nursing students need to familiarize themselves with a few general terms before they read and analyze research studies. When an article is written by one or more researchers, it is called a **primary source**. When an author addresses the research of someone else, it is referred to as a **secondary source**.

Research articles usually begin with an **abstract**, a summary statement that identifies the purpose, method-

## REFLECTIVE THINKING

### Nursing Research

Research in community health practice is challenging. The variables can be difficult to identify and measure. Consider ways that you might structure your research to answer the following.

How might you measure the "health" or "wellness" of your community?

You have decided to implement a teaching project on stress management to a group of well older adults. What criteria might you use to measure the effectiveness of your nursing interventions?

You are a new occupational health nurse at a local plastics factory. What questions might you ask the employees to better understand their need for and interest in health-promotion topics?

ology (inclusive of subject population), findings, and conclusions. Some authors also include implications for further study within the context of the abstract; see the accompanying display for the major elements in the content of an abstract.

During the career of a nurse, many clinical and practice questions will be raised that will require research methods to answer confidently. By pursuing and applying research in the area of choice, nurses acquire valid and reliable information that enables them to provide quality care.

## Evidenced-Based Practice

The goal of client care is to provide quality nursing services that are effective in promoting health and wellness and alleviating the discomforts of illness. The current status of the health care system (shrinking resources and increasing acute health care needs) challenges nurses to incorporate evidence-based practice (EBP) in order to provide efficacious nursing care and validate client outcomes. "Evidence-based practices are proven ways to diagnose and treat patients based on rigorous scientific evidence and clinical effectiveness studies" (Ling, 2000, p. 81). Although EPB has been emphasized in medicine for years, nursing is in the initial stages of developing an evidence-based practice. "However, for the goals of evidence-based practice to be met, a culture of practice must be developed in which all clinicians from every discipline are expected to justify their practices from the best evidence currently

available” (Burns & Grove, 2001, p. 296). Nurses must rely on the best evidence available to justify their practice until a solid scientific knowledge base evolves into EBP. Nursing as a profession has always recognized the importance of research as an essential basis for its development. The identification of the knowledge base for nursing practice contributes to achieving client outcomes and making nursing practice credible.

Although the terms *best practices* and *evidence-based practice* are often used interchangeably, these terms have different meanings. Evidence-based practice can be a best practice, but a best practice is not necessarily evidence-based; best practices are simply ideas and strategies that work, such as programs, services, or interventions that produce positive client outcomes or reduce costs (Ling, 2000). **Nurses need to base their clinical practice on empirical evidence to optimize client outcomes, to provide cost-effective safe practice, and to enhance the credibility of nursing care.**

Nurses draw from their experience by selecting specific nursing interventions that influence client outcomes; however, there is little scientific evidence to support nurses’ clinical decision making and expected outcomes. Early efforts to study client outcomes arose from quality assurance or quality improvement studies with nurse involvement in the development of interdisciplinary care plans such as critical pathways and care maps. However, critical pathways and care maps are not necessarily EBPs. According to Burns and Grove: “Outcomes research methods will be an important means to document the effect that nursing practice has on patient outcomes and to build the scientific base for evidence-based practice in nursing” (2001, p. 297). Outcomes studies will allow nurses the opportunity to explain the impact of their care through measures of outcomes of client care that reflect nursing practice. Although nurses are well placed to contribute toward more clinically effective and cost-effective client care, nurses need skills and resources to appraise, synthesize, and implement the best evidence in practice.

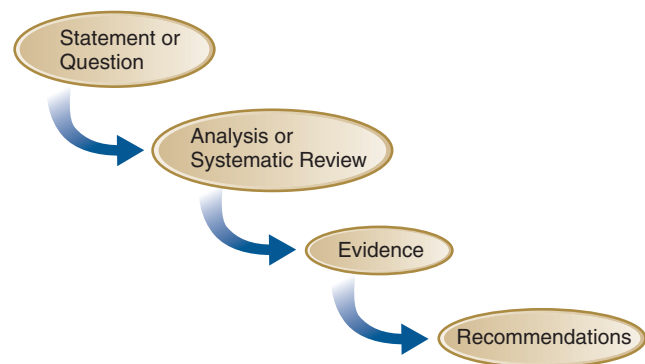
Benefield (2002) defines EBP as using the best evidence available to guide clinical decision making. This definition shifts the provision of health care away from opinion, past practice, and precedent toward a more scientific basis. “To use research-based interventions, nurses need to learn how to evaluate research reports, describe the level of evidence that exists on a particular topic, and identify the strength of the association for the research evidence that does exist” (Brockopp & Hastings-Tolsma, 2003, p. 40). Health care providers use evidence reports that have been developed and disseminated by govern-

ment programs, such as the AHRQ’s National Guideline Clearinghouse that serves as a public resource for evidence-based clinical practice guidelines, or private entities like the Cochrane Collaboration.

## Evidence Reports

“Evidence reports include knowledge synthesis, review, and documentation of how evidence-based practices are used in the clinical area, and can include discussion of the clinical relevance and utility of such practices” (Benefield, 2002, p. 803). The evidence report usually contains four distinct parts: statement, analysis, evidence, and recommendations; see Figure 3-1. Once the nurse becomes aware of the need for information, EBP requires the development of the *question* or problem statement that best defines the need. Once the question is defined, the nurse systematically reviews what research has been done on the particular topic. Systematic reviews differ from literature reviews. Systematic reviews use all relevant literature from multiple sources, published and unpublished, and there is a more rigorous and systematic appraisal and evaluation.

Following the review and analysis of the systemic data, the nurse must determine what the research demonstrates and decide the level of evidence in order to make recommendations to promote evidence-based practice. A structured research summary statement succinctly describes what the evidence reports. The analysis of the scientific data describes: a review of the various published and unpublished research; the details of the analysis; target populations that were studied; the type of clinical interventions that were investigated; and the strength of individual and collective study results (Benefield, 2002). The level of evidence ranks the



**FIGURE 3-1** Evidence records identify: need for information, analysis of scientific data, level of evidence, and recommendations for practice.

strength and quality of the study results. Research findings should be evaluated within the context of actual or potential usefulness in practice; and if the evidence deems it appropriate, the end product is a recommendation in the form of a practice-focused guideline or clinical intervention. EBP promotes quality care that has been demonstrated to be effective; see the accompanying display on determining evidence-based nursing practice for an example of how nurses may utilize research findings to make recommendations to promote evidence-based practice. If practice guidelines do not exist for a specific problem, the nurse needs to search for relevant evidence in studies, integrate reviews and analyses, and assess the quality of the evidence.

## Trends in Research and Evidence-Based Practice

The following trends in health care will have a definite impact on future nursing research:

1. Collaborative studies done by nurse researchers and nurse educators will increase critical thinking skills of nursing students.
2. Development of a scientific knowledge base will enable nurses to implement evidence-based practice.
3. Collaborative efforts will increase among health care providers to identify best practices.
4. Increased funding of NINR studies using a variety of methodologies such as outcomes research will generate a strong scientific base for nursing practice.
5. Nurse researchers will identify the relationship between registered nurse staffing levels and client outcomes.
6. Research focus on health promotion and illness prevention interventions will be in keeping with the agenda of *Healthy People 2010*.

“Nursing research has much to celebrate and much to accomplish as we stand at the beginning of a new millennium” (Grady, 2000, p. 33).

With the identification of clear, significant priorities for study, striving for excellence in the evolving knowledge base, and confirming study findings, nursing researchers are providing a creditable scientific position from which to address societal health care issues and guide nursing practice.

### ➔ KEY CONCEPTS

- The science of nursing is established by the same systematic, investigative process used by all science-based disciplines, the research process.
- Knowledge and nursing science are predicated on many ways of knowing such as tradition, systematic inquiry, esthetics, and empiricism and are influenced by gender perspectives.
- The five steps of the research process are statement of the research problem, delineation of a conceptual framework and review of the literature, selection of a research design, analysis and interpretation of the findings, and communication of the results of the research study.
- Research, education, and practice constitute the required integrated approach to the daily practice of all nurses.
- Obtaining informed consent for clients participating in the research process requires that the researcher provide full disclosure of the nature of the study, the subject’s right to refuse participation, and the likely risks and benefits that would be incurred by the study.
- The various applications of nursing research to education and practice can significantly influence the quality and delivery of nursing care.
- The importance of nursing research will increase as the result of trends occurring in educational programs,

### DETERMINING EVIDENCE-BASED NURSING PRACTICE

A nurse working on an oncology unit is interested in the relationship of oral contraceptives and the development of ovarian cancer.

- ⊙ Step 1. Review and critique research reports related to oral contraceptives and the development of ovarian cancer.
- ⊙ Step 2. Based on the critique of the literature on oral contraceptives and the development of ovarian cancer, identify the level and strength of the evidence: good, fair, or insufficient to support or reject a cause-and-effect interpretation of the association.
- ⊙ Step 3. Make specific recommendations regarding the use of oral contraceptives and the development of ovarian cancer based on the critiqued research and the level and strength of the evidence found in the research.

Source: Adapted from Brockopp, D., & Hastings-Tolsma, M. (2003). *Fundamentals of nursing research (3rd ed.)*. Sudbury, MA: Jones & Bartlett.

interdisciplinary collaboration, interrelationships between nursing practice and research, and nurse-client involvement in research activities.

- To bridge the gap between nursing research and nursing practice, several research utilization models have been developed to promote quality care (e.g., WICHE, CURN, and OCRUN models).
- Evidence-based practice promotes quality care that has been demonstrated to be effective.
- Researchers, educators, and practitioners need to work collaboratively to ensure that nursing establishes an evidence base for nursing practice.

## CRITICAL THINKING ACTIVITIES

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1. Name a phenomenon you may see in nursing or in clients that raises a question for you. Discuss the steps you would take to answer the question using a systematic investigation method.
2. Explain the difference between quantitative and qualitative research.
3. Why must the researcher secure an informed consent from research participants?
4. Describe the four elements of an evidence report.