The Staff Nurse’s Role in Nursing Research

2 Contact Hours

Objectives:

1. Define terms relevant to nursing research.
2. Explain how evidence-based practice incorporates research findings into practice.
3. Identify benefits of nursing research.
4. Recognize barriers to nursing research.
5. Identify resources to assist with nursing research.
6. Explain the PICOT acronym.
7. Critique research articles.
8. Explain the various components of research.
9. Explain the role of the institutional review board.
10. Identify ways to use findings from research studies.

Picture a group of staff nurses discussing what is “wrong” with their units. They use phrases such as, “if only we could,” “I think it would be better if we,” or I think we could decrease falls if we...” These comments are, arguably, repeated on every nursing unit and in every healthcare setting on most days of the week. Improvements in nursing practice and patient care outcomes often start with phrases such as these. These improvements occur when nurses ask questions, investigate options, and make changes in practice based on evidence identified via investigation. In other words, improvements are often the result of research implemented by staff nurses.

History of Nursing Research

The concept of nursing research is certainly not new. Florence Nightingale was probably the first nurse researcher. She was a firm believer in recording observations of patient care and patient outcomes and making changes in practice based on these observations. Nightingale began her role as a researcher during the Crimean War, where she established a system of nursing care for wounded soldiers from 1854 to 1856. She used her findings from observations and statistical studies to influence and improve the practice of nursing. [1,2]

Here are a few more examples of critical actions that contributed to the growth of nursing research: [2]

- Clara Barton: Used research methods to identify missing soldiers after the Civil War. Barton also founded the American Red Cross.
- The American Journal of Nursing: Began publication in 1900 and featured nursing case studies that were the initial steps toward publish nursing research in a nursing journal.
- Nursing Research: Began publication in 1952 and focused solely on nursing research.

Today, nursing research is a rapidly growing phenomenon and clinical specialty. More and more nurses are pursuing graduate degrees and supporting and initiating nursing research. The
establishment of evidence-based practice necessitates that scientific evidence be used to make clinical decisions. Such evidence is found via careful observation and research.

**Definition of Concepts**

What exactly is nursing research? “Nursing research is the systematic approach to solving and understanding clinical problems, as well as determining the effectiveness of current nursing interventions.” [2] It is a systematic and objective attempt to answer questions that impact the practice of nursing. The primary focus of nursing research is the systematic investigation of patients and their health experiences. [3] In other words, the ultimate purpose of nursing research is to improve patient outcomes.

Some characteristics of research include: [2,3]

- Research is always conducted to find a solution to a problem or question.
- Research requires precise observation and accurate description.
- Research requires that factors not under study are controlled.
- Research requires patience.
- Research is replicable.

Nursing research is essential to: [3]

- Continue building a body of nursing knowledge.
- Validate improvements in the practice of nursing.
- Help make healthcare both efficient and cost effective.

There are two main types of research: quantitative and qualitative. Quantitative research is also called empirical research. It is based on something that can be accurately and precisely measured—such as the effects of a certain medication on pulse and blood pressure. [4] Quantitative research is conducted to confirm a hypothesis and requires very structured types of methods of inquiry such as surveys or meticulously structured observations. Quantitative research generally requires relatively large numbers of participants. Data are analyzed statistically to predict outcomes and generalize findings. [5]

Qualitative research is used to refer to any research based on concepts that are not able to be quantified, meaning they cannot be precisely measured. [4] An example might be interviewing stroke survivors about their perceptions of hemiparesis or hemiplegia. Reviewing patients’ descriptions allows researchers to look for common themes as expressed by the patients themselves. These themes could be used to increase awareness among caregivers and, as indicated, change and improve communication among patients, families, and nurses.

*Note: The term triangulated approach means that both quantitative and qualitative methods are used in a particular research project.* [6]

Evidence-based practice (EBP) is another term critical to the understanding of nursing research. This concept began during the 1980s as “evidence-based medicine,” meaning that scientific evidence should be used to determine the best practice. The concept evolved to become “evidence-based practice,” indicating that all clinicians need to use scientific evidence as the basis of clinical decision-making. [6]
EBP mandates that structures and processes be established to evaluate current nursing practice and incorporate new knowledge to improve patient outcomes and enhance job performance. [1] Evidence-based practice does not rely solely on research. But research findings can be incorporated into practice for the benefit of patients and healthcare professionals. It is important to know how EBP and research complement each other.

**EBP and Nursing Research**

As previously noted, EBP is the use of scientific evidence to make clinical decisions. [6] Persons involved in EBP look at research findings, quality improvement data, other types of data, and consider expert opinions to identify ways of improving patient care and job performance. [7] It is important to be able to differentiate among these factors and identify how each contributes to EBP.

**Incorporating Quality Improvement into EBP**

Research utilization—the process of incorporating research findings into EBP—involves objective, critical analysis of research findings to determine if and how these findings should be incorporated into clinical practice. [6] Using such scientific findings as the basis for clinical practice is the foundation of EBP.

Quality improvement projects are usually not designed as research projects, but generally focus on dealing with specific problems or issues in a specific setting. For example, staff and management may be interested in decreasing the number of falls on the stroke unit. Quality improvement projects focus on that particular patient population located on that specific unit. These projects are not designed to generate scientific knowledge, but serve as tools to improve processes and outcomes within a given organization. [6]

Yet quality improvement projects can trigger research questions. In looking at falls on the stroke unit, nurses may question the way patients are transferred or other factors that influence patient safety. They may decide to compare two strategies to determine if there is evidence to support a change in practice.

Research projects can improve interdisciplinary collaboration. All clinical disciplines function, or should function, in an EBP manner. Interdisciplinary research efforts can increase efficiency, decrease costs, and ultimately, enhance communication and job satisfaction.

To identify research projects, nurses and other healthcare professionals must constantly ask themselves: “What evidence exists to support the way we perform this procedure?” “Is there a different way to provide patient care that will improve patient outcomes?” The spirit of inquiry is essential to both research and implementation of EBP.

**Benefits of Nursing Research**

Why should staff nurses be interested in participating in nursing research? Simply put, without the input of staff nurses there would be no valid and reliable research projects. Staff nurses are essential to nursing research because: [8]

- Nurses practicing at the bedside are the clinicians who know the patients best.
• Nurses practicing at the bedside know what has and has not been working in patient care delivery.
• Research findings provide staff nurses with a foundation for practice.
• Research findings provide evidence-based data to implement new ways to assess, evaluate, and deliver nursing care.
• Participating in research projects creates leadership opportunities for staff nurses.
• Participating in research projects creates opportunities for mentoring and continuing education.

Staff nurses may be essential to nursing research, but for them to seek out research opportunities these nurses must understand why and how nursing research benefits them and their patients.

Nursing research provides: [2,8]
• Opportunities for increased collaboration among nurses and among disciplines.
• Opportunities to enhance communication among nurses and among disciplines.
• Staff nurses with opportunities for autonomy and input into how they practice their profession.
• Evidence that can be used to improve clinical expertise, personal knowledge, job performance, and patient outcomes.

By identifying not only problems, but ways to investigate solutions, nurses are able to take control of how and why they practice nursing. Research activities have another benefit—they increase nursing prestige and help nurses receive the respect they deserve. The ability to conduct research and use findings in the clinical setting is impressive and essential to the body of knowledge that is nursing.

**Barriers to Nursing Research**

It is important to understand potential barriers to nursing research so they can be anticipated and, whenever possible, eliminated or reduced. One of the primary barriers to nursing research is the diversity of the education backgrounds of the nursing staff. Each nurse may have a different perspective of the process, as well as varying experience assisting with or conducting such research. Some nurses have had little or no opportunities to participate in nursing research projects. While other nurses, prepared at the graduate level, may have initiated and conducted nursing research. These differences mean that there may not be a foundation of basic knowledge necessary to trigger interest in and effective implementation of nursing research. [8]

The length of time it can take to conduct nursing research may be another barrier to the process. Some projects can take many months and it is a challenge to maintain not only interest in a research project, but the time necessary to participate in a lengthy project. Additionally, nurses and their managers may become concerned that the research process will take time away from patient care. [8]

The ability (or lack of ability) to critically evaluate research articles is yet another barrier. Many nurses have never had training or education evaluating research articles. Others may have had such education, but significant time has elapsed since then and crucial evaluation skills may have
been forgotten. The ability to conduct a sound literature review is essential to valid and reliable nursing research. [1]

Incorporating research findings into nursing practice is the primary reason for conducting nursing research. [8] However, to do this (and to conduct nursing research in the first place) an organizational culture supportive of nurse autonomy, the research process, and implementation of research findings is essential. [9]

What steps can be taken to reduce these barriers? Education is the foundation for promoting nursing research. Staff nurses cannot be expected to become enthused about initiating and participating in nursing research unless they feel comfortable and confident in their knowledge base. Continuing education and training should include: [1,2,9]

- How to critically evaluate research articles.
- An overview of the research process.
- How to identify a research question.
- How to use nursing research to increase nurse autonomy.
- How to apply research findings to nursing practice.

_Note: Nursing management and administration should also receive continuing education regarding research, especially pertaining to developing a culture that encourages the nursing research process._

Arguably the most frustrating barrier to nursing research is the inability to apply findings to clinical practice. This can generally be traced to an organizational or unit culture that inhibits nursing research. Education regarding the importance of nursing research and its contributions to EBP, patient outcomes, and job performance is not enough—there must be a true desire on the part of administration and management to establish this type of culture. Facilitation of nursing research should be part of all nursing department job descriptions, including those of management and administration.

Another important aspect of barrier reduction is the need to adhere to accreditation standards. For example, the American Nursing Credentialing Center Magnet Recognition Program (MRP) requires that EBP be entrenched in the organizational culture. Hospitals are mandated to document that nurses be able to evaluate published research and apply findings to clinical and operational systems and processes. The ANCC also require nurses to initiate research projects and apply findings from such projects to their practice. They are also expected to share knowledge gained from research with colleagues both from within and outside of the organization. [7] The need to adhere to these and other accrediting body requirements should facilitate barrier reduction and encourage the research process.

In a recent article published in the _Journal of Nursing_, Cynthia Gallagher, BSN, RN, made a number of recommendations to improve interest and participation in nursing research. [8] These recommendations should also help reduce some of the barriers to nursing research, and include:

- Establishing and encouraging participation in journal clubs. Participation should include critiquing research articles and what types of nursing research projects might be appropriate for specific clinical settings.
- Encouraging those responsible for the education of nursing students emphasize EBP and nursing research at all levels of education, not only graduate education.
- Encouraging staff nurses to attend research presentations, especially poster presentations.
- Encouraging staff nurses to assist in research projects whenever possible.
- Advocating for continuing education regarding nursing research, including how to incorporate research findings into clinical practice.

**Accessing Resources for the Implementation of Nursing Research**

Designing and implementing nursing research requires the guidance of someone who is skilled in the research process. Staff nurses need to seek out such resources as they acquire skills to participate in nursing research. Here are some questions to ask to help initiate research projects:

- What resources are available within the organization.
- Does the organization have a nurse researcher on staff?
- Is there a research department? What types of research are currently conducted and who is responsible for initiating research?
- What types of committees or councils exist that might be helpful? For instance, is there an education council, a research committee, etc.?
- What types of opportunities exist for collaborative research with other disciplines?

*Note: Arguably, one of the most important advocates is the nurse manager of your unit. She or he must support the research process and be willing to schedule time for staff nurses to participate in research.*

Some other things to think about include:

- Identifying research guidelines and procedures currently in place within the organization. Most organizations have policies and procedures to protect the subjects of any research study and to establish a process for safe and ethical research endeavors.
- Seek out opportunities for continuing education pertaining to nursing research. Talk to those who work in the nursing professional development department (often known as nursing staff development) and ask them to provide such education. Explore other opportunities for research education such as online activities or programs offered at other organizations or at local colleges and universities.
- Is the organization a site for nursing student clinical affiliations? Faculty members may be willing and eager to collaborate on research projects.
- Are any colleagues pursuing graduate education? Graduate courses generally require research at some stage of study. There may be excellent opportunities for collaboration.
- Local colleges and universities are another good source of assistance. Faculty members are often looking for opportunities to collaborate on research projects.
- Sigma Theta Tau, the Honor Society of Nursing, identifies research as an integral part of its mission. There are numerous chapters throughout the United States and worldwide. Contact an area chapter to find assistance with research projects.

It is important that staff nurses seek qualified help as they pursue nursing research. However, the interest and passion for research must come from within each nurse. It is essential that staff
nurses be involved in nursing research. They know the patients best and the focus of their practice is how to improve patient outcomes and their own job performance.

The Research Process

“Is there a better way to predict functional independence of stroke survivors?” “There must be a way to decrease delirium in our elderly hospitalized patients.” “Does bedside reporting improve patient care?” “I have an idea about how to prevent falls.” “I think limiting visiting hours in critical care units will improve patient outcomes.”

Any or all of these questions and concerns can provide the impetus for nursing research. Questions, concerns, and ideas must be narrowed to a researchable question. One of the most frequently used strategies to formulate research questions is the PICOT format.

PICOT

P stands for the patient population/patient problem under investigation. [10] The nurse researcher must answer the question, “Who is your patient?” For example, suppose nurses want to investigate ways to decrease delirium in their elderly patients. The patient population cannot simply be “elderly patients who suffer from delirium.” That is too broad a statement. The researcher needs to specifically describe the patient population under investigation and define relevant terms. For example:

- What is the definition of elderly? Aged 65 and older? Aged 70 and older? How does the literature define elderly?
- What are the characteristics of the population being studied? Are both men and women included?
- Is a specific disease or disorder the focus of the study? Are persons with certain conditions being excluded? For example, persons with Alzheimer’s disease may be excluded because that disease causes confusion and disorientation that cannot be impacted by interventions to reduce delirium in patients who are otherwise alert and oriented. The population being studied must be narrowed to reduce or eliminate factors that might skew results.
- What is the time frame of hospitalization? Is there a minimum and/or maximum number of inpatient days for patients in the research study?

These are just a few of the issues that need to be addressed when determining the patient population or problem under investigation. The patient population must be carefully defined. Issues that may skew results must be identified and if patients are impacted by those issues, they should not be included as subjects in the research process.

I stands for intervention. [10] What is going to be done for the patients? Are there specific medications that will be administered? Or are there therapies or diagnostic studies that will be used? Suppose nurses have decided to investigate the impact of relaxation therapy on chronic pain. A specific intervention or interventions would be identified such as aroma therapy or relaxation tapes. How the interventions would be provided would be specifically identified.

C stands for comparison. [10] What is the alternative to the planned intervention? For example, a group of critical care nurses is convinced that open visiting hours are interfering with patient
They believe that limiting the amount of time visitors have access to patients will positively impact their ability to provide nursing care. Such care will be more efficient and uninterrupted. They believe this will allow visitors to interact with patients without excessive interruptions by nurses. The nurses will compare specific patient outcomes in a group of patients whose visitors are able to visit at will with patients whose visitors are limited to specific time frames.

Note: Anyone involved in research must be prepared to accept findings, even if they are not what were desired. This author is reminded of a group of critical care nurses who were convinced that restricting visiting hours would improve patient care and patient outcomes. Research findings showed that patient outcomes were better in the group whose visitors were not confined to specific, limited visiting time periods.

O stands for outcome. [10] What outcomes are sought? Do they include less pain, more functional independence at discharge, lowered blood pressure? Desired outcomes must be clearly identified.

T stands for time frame. [10] Is there a specific time frame within which the research will be conducted? If so, why has this time frame been selected?

All aspects of research projects must be justified. No researcher can arbitrarily propose interventions unless there is a sound rationale for doing so. This justification begins with a review of the available scientific literature.

Review of Literature and the Critique of Research Articles

The review of literature helps narrow the researcher’s focus and establishes a theoretical basis for the research project. The literature review should: [2,11]

- Identify appropriate areas for investigation.
- Provide credible initiatives for patient care.
- Define appropriate concepts.
- Explain the proposed relationship between concepts.
- Interpret research findings.

Many healthcare professionals assume that if a research article is published in a reputable professional journal, its content must be accurate. Unfortunately, this is not true. The ability to objectively critique research articles is an essential skill for anyone who wants to participate in the research process. Therefore: [2,8]

- Conducting literature reviews and critiquing nursing research articles should be part of all basic nursing education programs.
- These skills should be expanded upon during continuing education for all professional nurses.
- Journal clubs should be established in nursing departments to help enhance literature review skills.

What is the process for critiquing research articles? Let’s begin with a definition of “literature review.” “A literature review is an account of what has been published on a topic by accredited scholars and researchers.” [12] Nurse researchers must conduct a literature review to gather
information and data on the topic they wish to investigate. In this day and age of vast technology, many healthcare professionals immediately turn to the internet to begin their literature review. There are a number of search engines helpful for conducting literature reviews. These include:

- The Cumulative Index to Nursing and Allied Health Literature (CINAHL): Provides indexing of nursing and allied health literature that covers a wide range of topics. Included in the database are nursing journals and publications, books, nursing dissertations, standards of practice, selected conference proceedings, book chapters, and audiovisuals. [http://www.ebscohost.com/biomedical-libraries/the-cinahl-database.](http://www.ebscohost.com/biomedical-libraries/the-cinahl-database)
- EBSCO Host: EBSCO Information Services provides information from e-journals, e-books, and research databases. [http://www.ebsco.com](http://www.ebsco.com)
- ProQuest Nursing & Allied Health Source: Designed to meet needs of researchers at healthcare facilities and nursing and allied health programs at academic institutes. Its database offers abstracting and indexing for more than 1,070 titles, with more than 890 titles in full text, and more than 12,300 full text dissertations. [http://www.proquest.com/en-US/catalogs/databases/detail/pq_nursingahs.shtml](http://www.proquest.com/en-US/catalogs/databases/detail/pq_nursingahs.shtml)

Before accessing any search engine, it is imperative to identify keywords to save time and narrow the search to relevant citations. [2] For example, suppose a group of rehabilitation nurses who specialize in stroke care are interested in improving bladder training to increase continence and independent bladder function. They cannot simply type in urinary incontinence or bladder training in a search engine. Citations for thousands, if not millions, of resources will appear. Researchers must ask themselves: [12]

- What is the specific problem or research question that the literature must help to define?
- What is the scope of the literature review?
- Is the search wide enough to make sure that all relevant literature has been found?
- Is the search narrow enough to make sure that irrelevant literature has been discarded?
- Have we critically analyzed the literature?
- Have we cited and discussed study findings contrary to our perspectives?

In the example about bladder training researchers would use words such as “stroke,” “bladder training,” and “urinary incontinence.” Researchers must decide on age parameters, if they are going to exclude any coexisting problems such as Alzheimer’s disease, and if they are going to study both men and women. The search can be narrowed by asking the following questions. [2]

- Who are the subjects to be studied?
- What is the problem?
- When does the problem occur?
- Why does it need to be studied?

Thus, researchers may access search engines by using terms such as:
- Bladder retraining in female stroke patients over the age of 65.
- Urinary incontinence in female stroke patients over the age of 65.

This would limit the study to females of a certain age. If researchers want to study both men and women, the wording would be bladder retraining in male and female stroke patients over the age of 65. As the literature search progresses, researchers may find other ways to narrow the search. As previously stated, it is important to critique any and all articles that are accessed. Here are important points to consider when critiquing articles. [2,12,13,14]

- What is the source of the article? Is it published in a peer reviewed professional journal? What is the process for review and publication of articles? Is it the policy of the journal in question to have articles undergo a peer review evaluation? Who are the editors of the journal? Are they credible healthcare professionals?
- What are the credentials of the author(s) of the publication? Do these credentials indicate that they are credible?
- Does the title of the article accurately describe its content? The title should not only trigger interest, but convey key concepts.
- Does the abstract convey the article’s key concepts? It should be an accurate preview of the article. A properly written abstract helps the researcher to determine if it worthwhile to read the entire article.
- Does the introduction clearly identify the purpose of the article? A well-written introduction includes a statement of the problem, the study rationale, and the research question.
- Is a theoretical framework used as the foundation for the study? If so, the framework should clearly relate to the topic under investigation and serve as a guide for interpreting results. Note: Not all research studies use a theoretical framework.
- What references do the author(s) of the article use as resources for their study? How current are they?
- When was the article written? Most references should be no more than three to five years old unless they are truly “classic” publications such as Florence Nightingale’s Notes on Nursing.
- Has the author or authors clearly identified the problem or issue under discussion?
- Is the significance of the issue or problem explained? Is it relevant to nursing practice?
- How accurate and valid are the methods used to gather, analyze, and evaluate data?
- Is the publication objective? Is there evidence of clinical bias? Is there evidence of commercial bias?
- In what ways is the article relevant to your research project?

Since many resources are now published exclusively on the Internet, it is important to be able to be able to critique these types of resources. Here are some recommendations to help in the critique of Internet resources: [2,15]

- What are the author’s credentials? Are they listed? Are the credentials appropriate for the material he/she has written?
- Is the author’s contact information provided?
Note: Many websites have a link called “About Us.” This link generally leads to a description of the person(s) responsible for the site and of those who contribute scholarly information. This description should include credentials and contact information. [15]

- Are references listed? Are they credible? Are they current?
- When was the website created? How and when is the site updated?
- Is any website sponsorship clearly stated? Funding sources must be clearly identified.
- Does the website contain advertising? If so, is it separate from the scholarly material?
- Is information objective and free from bias?
- Does the website provide contact information if technical assistance is needed?
- Is a privacy statement available? Any information requested by users of the website should be protected by a privacy statement.
- What is the purpose of the website? Is it primarily scholarly, popular culture, etc.?

Another important part of critiquing publications is the ability to identify levels of evidence. These levels help the reader determine the strength of the evidence of each publication. [2] The reader must ask how good is the evidence (meaning how valid and relevant) for the clinical situation described. [16] Research articles should identify how the studies were designed and implemented.

There are various descriptions of levels of evidence. The following hierarchy of evidence is based on Melnyk’s Hierarchy of Evidence. [16,18]

- Level I: Represents the strongest strength of evidence. This type of evidence is obtained from a systematic review and meta-analysis (the act of combining the results of several studies) of randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs.
- Level II: This evidence is obtained from one or more well-designed RCTs.
- Level III: Evidence is obtained from well-designed controlled trials but without randomization.
- Level IV: Evidence is obtained from well-designed case-control and cohort studies.
- Level V: Evidence is obtained from systematic reviews of descriptive and qualitative studies.
- Level VI: Evidence is obtained from a single descriptive or qualitative study.
- Level VII: Represents the weakest strength of evidence. This type of evidence is obtained from the opinion of expert(s).

The Cochrane Collaboration described rating for strength of evidence as follows: [2,18]

1. “The evidence is beneficial.”
2. “The evidence is likely to be beneficial.”
3. “The evidence is a trade-off between benefits and harm.”
4. “The evidence has unknown effectiveness.”
5. “The evidence is unlikely to be beneficial.”
6. “The evidence is likely to be ineffective or harmful.”

Regardless of the method chosen to determine strength of evidence, it is important that it be used objectively and consistently by all persons involved in the research project.

**Overview of the Steps of the Nursing Research Process**

The first step is to identify your topic. [2,19] What question is being asked? For example, it might be, “What is the impact of patient education on prevention of stroke recurrence?” Or perhaps nurses are asking, “How does implementation of bedside shift report influence patient satisfaction?”

After the topic is identified and the research question formulated, the next step is to identify main concepts or critical keywords in the question. Identifying these concepts and keywords will help narrow the topic and the literature search. It is important to identify the specific components of patient education in the example pertaining to the impact of patient education on prevention of stroke recurrence. Also, determine if the patients to be studied have only had one stroke or if the study should include patients who have had more than one stroke prior to the study. Next, determine an age range and whether to exclude preexisting conditions such as heart disease and diabetes. Colleagues who have nursing research experience can help narrow the focus and identify key concepts.

As the topic is selected and key concepts identified other important issues must be considered. These include: [2,20]

- **Time:** Will the research be able to be completed within a realistic time period?
- **Adequate numbers of subjects:** Is there an adequate number of subjects that can be obtained to participate in the study?
- **Location of the study:** Most researchers select the organizations for which they work or with which they have some time of association, such as a clinical affiliation. But researchers must consider the review and approval process mandated by the organization, the resources available for nursing research, and how supportive the organization is to the nursing research process.
- **Finances:** What are the costs related to the nursing research project to be conducted? These include staff time related to conducting the research, expenses related to analysis, copying charges, and, if applicable, postage or computer resources if surveys or questionnaires are part of the research methodology.
- **Ethics:** Ethics is a significant concern in any research project. How are participants protected? Is there any risk to the health and safety of participants (e.g. are they taking an experimental drug or agreeing to an experimental treatment method)? How will participants receive an explanation of the study and how will they give informed consent to participate in the research project? How will confidentiality be protected? How will objectivity be maintained during data analysis? At times, some unethical researchers have been found to alter data so that findings are skewed to support the researchers’ beliefs. It is imperative that results are reported accurately, and that patients’ rights and well-being be protected at all times.
After the topic is identified and key terms and concepts confirmed, a review of the literature is conducted. As previously discussed, resources included in the literature review must be critiqued for their reliability as appropriate references.

The researchers must consider the characteristics of their sample. After the characteristics of the study population have been identified, it must be decided how many subjects will be included. Samples are a subset or a small number of selected people that represent the entire population being studied. [2] These participants should be representative of the population being studied.

Choosing samples depends on two methods, probability and non-probability. [2]

Probability sampling includes the following techniques: [2]

- Random: Each identified subject has an equal opportunity to participate in the research project.
- Systematic: Every so many subjects are chosen to participate in the research project. For example, every fifth person is chosen to participate.
- Stratified: Subpopulations with particular characteristics being studied are chosen to participate.
- Cluster: The population under study is divided into a particular number of groups in the research project.

Non-probability sampling includes the following techniques: [2]

- Convenience: Easily accessible and available subjects are used in the research study.
- Snowball: One subject suggests other possible subjects that may be eligible to participate in the study.
- Purposive: A specific population is selected based on specific criteria.
- Expert: Persons with expertise in a specific area are selected because of their relevance to the study.
- Quota: Subjects are chosen based on the personal judgment of the researcher.

How many subjects are needed? There is no exact formula to answer this question. Researchers need to consider what they are studying and the type of statistics that will be used to evaluate data. A general rule of thumb is that the larger the sample size, the more valid the results will be. [2] However, if researchers are studying a rare phenomenon, a small sample size would be adequate.

Some resources that can be useful when determining sample size include:

- Russ Lenth’s Power and Sample-Size Page: [http://www.stat.uiowa.edu/~rlenth/Power/](http://www.stat.uiowa.edu/~rlenth/Power/).

The method of data collection should be determined. Some examples of methodology include: [2,10,19]
- Biophysical measurements (e.g. blood pressure, pulse, heart sounds).
- Self-reporting (e.g. perception of pain or relaxation).
- Surveys.
- Personal interviews.
- Observations.

The next step is to decide how to approach potential research subjects about participating in the research study. A cover letter is usually developed that explains what is planned and what participants can expect. Such a cover letter would include: [2]

- The date.
- Patient’s (potential subject’s) name and address.
- The purpose of the research.
- The name(s) and title(s) of the researcher(s).
- How long the study will take and what they will have to do or what will be done for them. For example, if subjects are asked to complete a survey, it would state that they are asked to complete a ___item survey that will take approximately ___ to complete.
- Name and contact information of the researcher(s) so the potential subject can contact them.
- A statement indicating that participating in this research project is voluntary and treatment will not be affected if the patient decides not to participate.
- The signature of the researcher(s).

*Note: As needed, have the cover letter available in other languages. Make sure that all questions are answered and that all potential subjects are able to give informed consent.*

After data are collected, the next step is to statistically analyze them. Novice and beginner researchers will consult with their colleagues who are experienced nurse researchers to determine the best way to statistically analyze data.

What will be done with the results of the research study? How will they be incorporated into clinical practice. For example, will a change in clinical practice be proposed based on results? These questions must be addressed as part of the research plan.

All of the preceding issues must be put in writing as part of a research proposal, which will be submitted to the organization’s institutional review board prior to beginning research.

**Role of the Institutional Review Board**

The institutional review board (IRB) comprises persons from various backgrounds. Members may include physicians, nurses, and other healthcare professionals, chaplain services, and lay people from the community. The IRB reviews research proposals to determine if the proposed research activities have potential risks or benefits to the subjects and the organization.

Be sure to follow the organization’s policies and procedures for research development and the IRB’s guidelines for writing a research proposal.
The following components are generally part of any written research proposal: [2]

- Cover sheet.
- Introduction to the proposed research study.
- Objects of the study.
- Significance of the study.
- Methodology.
- Sample of the consent form.

The IRB will review the proposal. The researchers will most likely be asked to attend a meeting of the IRB to answer any questions. The IRB may ask for certain components of the research design to be amended. If so, this will need to be done and the proposal resubmitted at the direction of the IRB as needed.

**How to Use Research Findings**

After the research data have been collected and analyzed, findings could be used to enhance clinical practice. For example, do the findings indicate that a change in practice (e.g. implementing bedside report or altering ways of providing patient education) would be beneficial? How will such changes be made?

Ideas about practice changes are part of the research proposal. They are written in general terms. After the research project has been completed, appropriate measures must be taken to incorporate findings into practice. This may involve a change in policy, procedure, or regulatory initiatives.

Be prepared to share research findings with the organization at managerial meetings, policy and procedure committee meetings, education council meetings, departmental meetings, etc. The point is to not only share the findings, but to explain how and why changes should be made in clinical or other types of professional practice.

It is highly recommended to share the research project, its findings, and how to use these findings to improve practice beyond the organization. Consider publishing the findings in professional journals and/or at professional healthcare conferences. The purpose of research is not only to improve practice within the organization, but to help others improve professional practice within their organizations as well.

Nursing research benefits patients, nurses, and the organization as a whole. It also adds to the body of clinical knowledge that comprises nursing practice. Nursing research also enhances the autonomy and prestige of nurses. Part of the definition of a professional healthcare discipline is the ability to identify problems, conduct scientific research, and, using research findings, improve patient outcomes.

**References**


The Staff Nurse’s Role in Nursing Research

Self Evaluation Exercises
Select the best answer for each question and check your answers at the bottom of the page.
You do not need to submit this self-evaluation exercise with your participant sheet.

1. Quantitative research is based on something that can be accurately and precisely measured.
   True    False

2. Quality improvement projects are also designed as research projects.
   True    False

3. One of the benefits of nursing research is that nursing research creates leadership opportunities for staff nurses.
   True    False

4. Arguably the most frustrating barrier to nursing research is the inability to apply findings to clinical practice.
   True    False

5. The nurse manager is not essential to promoting research conducted by staff nurses.
   True    False

6. In the PICOT format, the I stands for implementation of findings.
   True    False

7. When critiquing research articles, it is important that the introduction identifies the purpose of the article.
   True    False

8. When deciding how to choose a sample, it is important to know that a random sampling is done by choosing subpopulations with particular characteristics.
   True    False
9. The IRB reviews research proposals to determine if the proposed research activities have potential risks or benefits to the subjects and the organization.
   True   False

10. Research data are analyzed to determine how findings can be used to enhance clinical practice.
   True   False