

# Evidence Based Nursing- Be a Part of It!

by



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## Goal

The goal of this course is to help nurses to become more discriminating and savvy users of the research that has become so much a part of Healthcare Practice.

## Objectives

Nurses completing this course should be able to:

1. Know what Evidence-Based Nursing Practice (EBN) is.
2. Know how to gain familiarity with the definitions of commonly-used terms that are part of research papers providing EBN.
3. Be able to formulate a list of questions a critical thinking nurse might ask while reading a research paper.
4. Know the four steps necessary for reading about or carrying out EBN.
5. Examine a research paper using a four-step method as a guide.

## Introduction

**Evidence-based practice** is defined as a problem-solving approach to the delivery of healthcare that incorporates the best available evidence, clinicians' expertise, and patient values and preferences.

There is universal acknowledgement that clinical care given by caregivers should be based on the best available evidence. Knowledge and evidence coming derived from intellectual methods should guide our clinical practice, decisions, and be able to change to improve the way care is delivered. Interpreting research evidence to nursing practice is of utmost importance for safe, efficient, and effective healthcare. Nurses are found on the frontline of healthcare more than any other professional. As such, nurse led research is becoming more recognized as imperative to improving patient outcomes.

“Evidence-based practice challenges nurses to look at the *why* behind existing methods and processes in the search for improvement”, says Marquetta Flaughner, ARNP-BC, DSN, an advanced practice nurse at Bay Pines Veterans Administration Hospital in Florida. “So much is based on opinion and tradition, and we can't do that anymore”, she adds. “We need to use evidence and speak that language.” She feels that Nursing Best Practices are constantly evolving and cites the example of being taught in nursing school that the treatment for muscle strain was always the application of ice for the first 24 hours followed by heat to increase circulation to the muscle. “Now if you look at the evidence, research says we just use heat. We validated the outcome.”

On a more complicated level, recent research done within the National Institute of Health (NIH) provides the following: "Our findings indicate that women who reduce the proportion of animal fat and cholesterol in their diets before pregnancy, may lower their risk for gestational

diabetes during pregnancy," said senior author Cuilin Zhang, M.D., M.P.H., Ph.D., of the Epidemiology Branch at the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), one of three NIH institutes supporting the study.

The researchers concluded that changing the source of 5 percent of dietary calories from animal fat to plant-derived sources could decrease a woman's risk for gestational diabetes by 7 percent. The above statements are part of an important research paper on reducing the risk of Gestational Diabetes, published recently by the National Institute of Health (NIH). Clearly this research has implications for nurses—in their practice, in health-teaching and even, if they happen to be female and of child-bearing age, in their own lives.

But let's face it, most nurses are more used to doing rather than reading, basing their decisions on their own experience, rather than on research. Yet the importance of basing decisions on valid, statistical study of a problem rather than our own notions has been proven over and over again. Bear in mind—common knowledge once was that Diabetes Mellitus was completely caused by eating sugar, with no other factors to consider. That eating sugar in itself caused Diabetes remained true until research proved it untrue. Yet research papers often make our eyes glaze over or even put us to sleep. This course will look at the best ways for nurses to keep current with the latest research, become critical thinkers, and evaluate what a body of research actually means to Nursing Practice.

Using the above passage as an example, several questions immediately come to mind. When gestational diabetes is discussed, is this condition temporary during pregnancy, or will the mother-to-be remain diabetic after? (In other words, how significant a threat is gestational diabetes?) If changing 5 % of dietary calories from animal fat to plant-derived sources (that is using olive oil instead of butter, for example) prior to pregnancy decreased a woman's risk for gestational diabetes by 7 percent, would further decrease in animal fat provide an increased percentage of safety from this condition? And can dietary changes made after the woman becomes pregnant make a difference? These questions are part of the critical thinking that nurses need to do when incorporating research into Nursing Practice.

### **What is Evidence-Based Nursing?**

Evidence-based Nursing (EBN) came into being by following in the footsteps of Evidence-based Medicine in the early 1990's. Both involve being able to find solid research findings and apply these findings to practice to improve patient care. Evidence-based Nursing's primary goals are to provide the highest possible quality and most cost-effective healthcare. EBN requires the collection of, interpretation of, and incorporation of research on whatever aspect of healthcare is being looked at. Some consider only clinical trials to be truly research, while others will also include expert opinions and what nurses have always used—case reports that reflect their experience. Understanding the concept of research and being proficient at evaluating research has become a part of professional nursing.

Evidence-based practice is the foundation of nursing, but the healthcare market changes call for more collaboration to implement EBP. Current staff can become EBP champions and role models for newer nurses to implement a shared vision for implanting EBP across

disciplines. As nurses, we cannot answer these practice questions without examining the literature and researching the key components necessary to help us help our patients and families.

### **The Four Steps of EBN:**

Nurses seeking to research a specific nursing problem in order to provide Evidence-based Nursing practice need to carry out the following four steps:

1. **Identify the problem** as a research topic. This involves collecting ideas from many different sources and then categorizing them into what are termed problem-focused triggers and knowledge-focused triggers. Problem-focused triggers are often discovered by quality improvement and risk-management; through benchmarking data collection, financial information, or recurring clinical problems. Knowledge-based triggers develop as a result of healthcare staff reading or listening to other professionals' research findings. Problems identified should be interdisciplinary in order to gain collaboration with all areas of the organization, serious enough to make them a priority and encourage brain-storming and have availability of solid evidence so that valid conclusions can be drawn. One of the most important aspects in this identification of the problem is framing the actual questions so that pertinent literature can be reviewed. Using the above NIH research as an example, because they were looking at dietary issues and the effect upon gestational diabetes, researchers would wish to exclude data about male diabetics.
2. **Put together a team.** If research is to be completed by a group, a team should be created. The EBP team should develop definitions of what type of patient, setting, interventions, and outcomes will be studied. This information should be presented as clearly and simply as possible.
3. **Get the Evidence.** As much research as possible related to the chosen topic must be reviewed. Clinical studies, system reviews, review of guidelines, and literature retrieval are all part of this process. The internet has become a highly helpful partner in finding and reviewing such information. However it is important to remember that finding an article in a prestigious journal does not necessarily signify that the information contained is based upon high quality research. Read (and review) all articles retrieved closely and carefully. Are there biased statements in the piece that contaminate the findings and lower its credibility? The National Guideline Clearinghouse, an agency provided by the United States Dept. of Health and Human services provides good guidelines. Proven reliable internet sources include British Medical Journal, Medline Industries, Inc., PubMed, and Cinahl Information Systems Homepage. The first component found in research papers is the ABSTRACT. This provides a quick overview of the article including the topic, why the study was done, its importance, methods used, results or findings and implications for nursing practice. Reading an abstract will indicate whether the article will be useful. After the abstract is the BODY OF THE ARTICLE. Usually this will include the

- BACKGROUND—the significance of the topic. Whether actually doing the research or reading others’ scientific study, the acronym PICO is a model of information-seeking that should be included in the actual paper:
- a. P=Patient population being studied. This will include the number of participants, including basic information such as average age, gender, even educational level and marital status, height and weight, etc. Federal laws require that subjects involved give Informed Consent, receive information about their rights and, per HIPPA Laws, be assured of confidentiality.
  - b. I=Possible Intervention will be included in the METHODOLOGY. This provides a blueprint to the overall design of the study. It is called a Quantitative Methodology if specific variables are measured and presented in a numerical manner—often in charts or graphs. Qualitative studies rely less on data than a subjective narrative focus: the researcher tells a story by examining data and pulling it together to reach a conclusion. DATA COLLECTION is also part of this section; telling what procedures and instruments (questionnaires, observations, interviews and physiological measurements) were used.
  - c. C= Is there a comparison control group? Are those being studied compared with another group who are not receiving the proposed treatment?
  - d. O=Desired outcome. Results, or DATA ANALYSIS are the graphs and charts based upon the factual results of the study expressed in numbers. A term that may be used in this section is null hypothesis. This refers to theoretical findings that would often be the exact reverse of what the researcher hopes to prove. An example of this from the earlier-quoted research study would be to say that eating large quantities of animal fats has no effect upon gestational diabetes. If the study shows that eating animal fats does not increase the incidence of gestational diabetes, that hypothesis is considered “null” as it has been disproven.
4. Apply the Evidence: The information is then assembled, reviewed and evaluated for its accuracy and relevance. Do the facts presented in the study appear to be accurate? Do these facts apply to the original problem or issue? Is there general agreement among researchers on the conclusions reached? In a research paper, this information will usually be found in the sections entitled DISCUSSION and IMPLICATIONS. This is where researchers assemble the results and give a summary of what all of this really means. This is where the nurse should use their critical thinking skills to evaluate whether the information they have read would make them come to the same conclusion. Information about problems encountered or limitations found while doing the research will most likely identify areas of further research needed. The last section will be the REFERENCE LIST—where the sources of information they have read and utilized will be listed.

Many people like to use Wikipedia. According to their own website, [https://en.wikipedia.org/wiki/Wikipedia:Academic\\_use](https://en.wikipedia.org/wiki/Wikipedia:Academic_use), it should not be used or considered as a

credible source. This especially true since ANYONE can go in and edit a topic. It is imperative that all research is from reliable sources.

## **Critical Reading**

Making an outline can help nurses to effectively read and utilize information from research papers. That outline should include both the questions and answers to the following:

- What is the main topic of the research paper?
- What research question was addressed?
- What is the relevance of that research question? Why is it important?
- What proposed solution to the problem is the researcher presenting? (In other words, what is the research hypothesis?)
- What did the researcher(s) actually do to prove their hypothesis?
- Did the study provide new, interesting information about the addressed problem/subject?
- What methods were used?
- How did the researcher(s) evaluate their work as compared with other researchers?  
Would all readers evaluate the information the same way?
- Do the various parts of the research fit together logically? Note any places where any of the information does not appear to be based on logic or facts.
- What were the results? Did the researcher(s) prove the hypothesis they started with?
- Were there limitations to the research? How could these limitations have been eliminated of the study improved?
- What are the implications for future research?
- How do these implications apply to Nursing Practice?

## **Four-Step Method for Reading Research Papers**

If reading a scientific paper is broken down into steps, the task becomes less daunting.

1. **STEP ONE = Skimming.** Read over the paper quickly, looking at the major headings, pictures, figures, etc, just to get an initial overview of what the paper is about.
2. **STEP TWO = Vocabulary.** Using a highlighter, go through the paper line by line and identify every word or phrase you don't understand. This might become a pretty long list, but it is an important one, if you are going to make sense of the article.  
Depending on the term and your question about it, you can use several approaches.
  - a. First, use a dictionary; look up unfamiliar words using an appropriate dictionary, such as medical dictionary for medical terms. Another useful resource might be a nursing textbook. A standard English dictionary may not be precise enough, or reflect the exact way the researcher is using the word, but it is a place to start.
  - b. Then, examine the context in which the word is used. This is useful for words that are describing procedures used in the course of the experiment. The paper itself may also provide specific definitions for terminology used, saying

- something like, “for the purposes of this article the acronym EBN refers to Evidence-based Nursing (Practice).”
- c. Flag the phrase as belonging to one of the major concepts of the paper. In which case, it becomes more that a question of understanding vocabulary. For example, a paper about cancer or type 2 Diabetes might use the phrase “risk reduction,” which you would need to understand in depth, as related to the context of the article.
3. **STEP THREE = Comprehension.** Once you have dealt with all the vocabulary, you are ready to read through the paper, section by section, using the understanding of the parts of a research paper discussed previously.
- *Introduction* – what is the larger picture as related to the specific issue addressed? What does the researcher hope to prove or accomplish? Why is it important? Do you agree with the significance of the issue?
  - *Methods* – What was actually measured? Were the items measured appropriately related to the research questions? (For example, do APGAR scores tell us anything about long-term growth and development)? Do the results support the researcher’s hypothesis? Look at the graphs and tables-they should help summarize the data. See if you can explain the figure in your own words.
  - *Discussion* – what conclusions were drawn? What is one major finding? Do you agree the interpretation? What limitations or problems were identified? Do you see any others? Do you feel that you have enough information to judge for yourself how the experiment turned out? Can you think of further research questions that could be studied?
  - *Implications* – how will this information affect your nursing practice? Will it change the way you do a procedure or your choice of intervention for a situation?
4. **STEP FOUR = Reflection and criticism.** After analyzing the article, go back to re-examine the issues and draw your own conclusions. If you wrote down your own questions as you went through study, go back and see if your questions were answered. What would you do differently? Were there problems the researcher did not address? Are there other factors that could have influenced the results?

It is imperative to be sure that you are looking at a reputable article, website, etc. Another thing to consider, is the size of the sample. Sometimes you will notice a big claim and then discover that only a handful of people were in the study or only a few observations were made. While the study may be valid, it will need to be replicated on a larger scale.

### **Nurses in Research**

Many hospitals and healthcare institutions have research departments. Nurses may work on studies for many things include drug efficacy and safety, evidence based nursing care, new treatment options, and many other topics. Some studies are totally conducted by nurses and others may include a multi-disciplinary team, and some may be ran by pharmaceutical companies or the government. Nurses can theorize, hypothesize, structure studies, and collect

evidence that leads to better care. The goal of nursing research is to achieve better care standards and applications for patients and families.

## **Conclusion**

Hospitals need to incorporate evidence-based practice into the cultures of their organizations, explaining why delivering care according to tradition and familiarity must give way to practices driven by research. Nurses need to be willing to alter old habits and changing thought patterns on how care needs to be delivered. Leadership must be onboard and supportive. Job descriptions and expectations for practicing nurses and advanced practice nurses must include the new evidence-based practice competencies. Healthcare facilities also should be investing in baccalaureate degrees for their nurses. Research shows that patients have fewer complications and fewer deaths occur in hospitals that have a higher percentage of baccalaureate degree nurses. The *Worldviews* study also showed a strong link between higher educational levels and the ability and willingness of nurses to move toward evidence-based care.

Take the time to read articles and learn more. Our patients and their needs are ever changing and we must be able to as well. Nurses have the ability and knowledge to change how we do things if your patients will benefit!



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