Chapter 2- Fundamentals of Evidence-Based Nursing Practice

1. Research utilization is a process that begins with which of the following?
   A) A clinical problem that needs to be solved
   B) A problem-focused trigger
   C) A knowledge-focused trigger or research finding
   D) A well-worded clinical question
   Ans: C
   Feedback:
   Research utilization (RU) is the use of findings from disciplined research in a practical application that is unrelated to the original research. Evidence-based practice is broader than RU because it integrates research findings with other factors. Several models of EBP, such as the Iowa Model, have distinguished two types of stimulus ("triggers") for an EBP endeavor—(1) *problem-focused triggers*—the identification of a clinical practice problem in need of solution, or (2) *knowledge-focused triggers*—readings in the research literature. A second catalyst for an EBP project is the research literature—knowledge-focused triggers, which is the origin akin to research utilization.

2. Which of the following is an example of a systematic review?
   A) An RCT study published in the journal *Nursing Research*
   B) A meta-analysis from the Cochrane database
   C) A synopsis published in *Evidence-Based Nursing*
   D) A clinical practice guideline from the National Guideline Clearinghouse
   Ans: B
   Feedback:
   A meta-analysis is a type of systematic review and a technique for integrating quantitative research findings statistically. In essence, meta-analysis treats the findings from a study as one piece of information. The findings from multiple studies on the same topic are combined and then all of the information is analyzed statistically in a manner similar to that in a usual study. Unlike systematic reviews, clinical practice guidelines (which often are *based* on systematic reviews) give specific recommendations for evidence-based decision-making. Guideline development typically involves the consensus of a group of researchers, experts, and clinicians. A randomized controlled trial (RCT) is an individual study that focuses on the effectiveness of therapies rather than on broader health-care interventions. Synopses, or summaries, of systematic reviews and of single studies are available in evidence-based abstract journals such as *Evidence-Based Nursing.*

3. Most evidence hierarchies put which of the following at the pinnacle?
   A) Randomized clinical trials (RCTs)
   B) Systematic reviews of multiple studies
   C) Quality improvement projects
   D) It depends on the research question
   Ans: B
   Feedback:
   In all evidence hierarchies that include randomized clinical trials, quality improvement projects and research questions, systematic reviews are at the pinnacle.

4. Which of the following can be used to critically appraise clinical practice guidelines?
   A) A systematic review from the Cochrane Collaboration
   B) The Iowa model
   C) The AGREE instrument
   D) An evidence hierarchy
   Ans: C
   Feedback:
   Evidence-based clinical practice guidelines distill a body of evidence into a usable form. Unlike systematic reviews, clinical practice guidelines, which often are *based* on systematic reviews, give specific recommendations for evidence-based decision-making. Several appraisal instruments are available to evaluate clinical practice guidelines, but one with broad support is the Appraisal of Guidelines Research and Evaluation (AGREE) Instrument. The Iowa model is used in selecting a problem for an institutional evidence-based project. An evidence hierarchy is a tool for ranking evidence sources according to the strength of the evidence they provide.

5. Which of the following models was explicitly developed with the idea that individual nurses could engage in RU-type activities?
   A) Iowa Model
   B) Johns Hopkins Model
   C) Cochrane Model
   D) Stetler Model
   Ans: D
   Feedback:
   Some models focus on the use of research from the perspective of individual clinicians such as the Stetler Model, one of the oldest models that originated as an RU model, but most focus on institutional EBP efforts such as the John Hopkins Nursing EBP Model and the Iowa Model. There is no Cochrane Model; the Cochrane Collaboration is an organization that prepares, maintains, and promotes the accessibility of systematic reviews.

6. In the following clinical question, what is the *Outcome* (O component): What is the effect of relaxation therapy versus biofeedback on the functional ability of patients with rheumatoid arthritis?
   A) Functional ability
   B) Rheumatoid arthritis
   C) Biofeedback
   D) Relaxation therapy
   Ans: A
   Feedback:
   In the PIO acronym, P stands for the population or patients (rheumatoid arthritis); I stands for the intervention, influence, or exposure (biofeedback or relaxation therapy); and O stands for the outcomes (functional ability).

7. In the following clinical question, what is the *Intervention/influence/exposure* (I component): Does taking antidepressants affect the risk of suicide in cognitively impaired adolescents?
   A) Adolescence
   B) Suicide
   C) Antidepressant use
   D) Cognitive impairment
   Ans: C
   Feedback:
   In the PIO acronym, P stands for the population or patients (cognitively impaired individuals); I stands for the intervention, influence, or exposure (antidepressants); and O stands for the outcomes (risk of suicide).

8. In the following clinical question, what is the *Population* (P component): Do stress and depression affect dyspnea in patients with chronic obstructive pulmonary disease (COPD)?
   A) Patients who are stressed
   B) Patients who are depressed
   C) Patients who experience dyspnea
   D) Patients with COPD
   Ans: D
   Feedback:
   In the PIO acronym, P stands for the population or patients (patients with chronic obstructive pulmonary disease); I stands for the intervention, influence, or exposure (stress and depression); and O stands for the outcomes (dyspnea).

9. In the following clinical question, what is the *Comparison* (C component): Does chronic stress affect inflammatory responses in older men with atherosclerotic disease?
   A) Chronic stress
   B) Inflammatory response
   C) Atherosclerotic disease
   D) There is no "C" component
   Ans: D
   Feedback:
   In the PICO acronym, P stands for the population or patients (older men with atherosclerotic disease); I stands for the intervention, influence, or exposure (chronic stress); C stands for the component that is needed (there is no intervention or influence of interest contrasted with a specific alternative); and O stands for the outcomes (inflammatory response).

10. In which of the following clinical questions is fatigue the "I" component?
    A) Does fatigue affect agitation in cognitively impaired elders?
    B) Does a physical activity intervention affect fatigue in patients undergoing cardiac rehabilitation?
    C) What is the meaning of fatigue among patients with sleep apnea?
    D) Does the level of depression of patients suffering from chronic fatigue improve by participating in an exercise intervention?
    Ans: A
    Feedback:
    Fatigue is the "I" component (*intervention, influence,* or *exposure)* in the question, "Does fatigue affect agitation in cognitively impaired elders?" In the other answers, fatigue is one of the other components.

11. Which of the following is a question that would be asked as part of the process of *appraising* research evidence?
    A) What are the P, I, and O components?
    B) How rigorous and reliable is the evidence?
    C) What type of trigger should I use?
    D) Is a relevant systematic review available?
    Ans: B
    Feedback:
    Individual nurses have opportunities to put research into practice. The five basic steps for individual EBP are: (1) asking an answerable clinical question as evidenced by, "What are the P, I, and O components?" (2) searching for relevant research-based evidence as evidenced by, "Is a relevant systematic review available?" (3) appraising and synthesizing the evidence as evidenced by, "How rigorous and reliable is the evidence?" *Triggers* for an organizational project include both pressing clinical problems (*problem-focused*) and existing knowledge (*knowledge-focused*) such as asked by the question, "What type of trigger would I use?"

12. Which of the following activities is part of an organizational—but not an individual—EBP endeavor?
    A) Asking a good question/identifying a problem
    B) Searching for evidence
    C) Assessing implementation potential
    D) Synthesizing and appraising evidence
    Ans: C
    Feedback:
    EBP in an organizational context involves many of the same steps as individual EBP efforts, but is more formalized and must take organizational factors into account. *Triggers* for an organizational project include both pressing clinical problems (*problem-focused*) and existing knowledge (*knowledge-focused*), such as assessing implementation potential. Individual nurses have opportunities to put research into practice. The five basic steps for individual EBP are: (1) asking an answerable clinical question; (2) searching for relevant research-based evidence; (3) appraising and synthesizing the evidence; (4) Integrating the evidence with your own clinical expertise, patient preferences, and local context; (5) Assessing the effectiveness of the decision, intervention, or advice.

13. Asking a clinical question is the first step in evidence-based practice. What are the four components of a PICO clinical question?
    A) Population, implication, comparison, outcome
    B) Population, intervention, clinical, outcome
    C) Population, intervention, comparison, outcome
    D) Population, implication, clinical, outcome
    Ans: C
    Feedback:
    A crucial first step in evidence-based practice (EBP) involves asking relevant clinical questions that reflect uncertainties in clinical practice. Most guidelines for EBP use the acronyms PIO or PICO to help practitioners develop well-worded questions that facilitate a search for evidence. In the acronym PIO, the *P* stands for population or patients; the *I* stands for intervention; and the *O* stands for outcome. The acronym PICO includes these same three components plus a fourth, *C*, which stands for comparison.

14. Which following level of evidence includes systematic reviews of multiple studies?
    A) Level IV
    B) Level III
    C) Level II
    D) Level I
    Ans: D
    Feedback:
    Systematic reviews are at the pinnacle of the hierarchy (Level I), because the strongest evidence comes from careful syntheses of multiple studies. The next highest level (Level II) includes individual randomized controlled trials (RCTs). Going down the "rungs" of the evidence hierarchy for Therapy questions results in less reliable evidence—for example, Level III evidence comes from a type of study called quasi-experiment. In-depth qualitative studies are near the bottom, in terms of evidence regarding intervention effectiveness.

15. A nurse in the United States is scheduled to care for a child with an ostomy. Which of the following resource would best assist the nurse with specific guidelines for evidence-based decision making for this patient?
    A) MEDLINE
    B) TRIP
    C) www.guidelines.gov
    D) www.rnao.org/bestpractices
    Ans: C
    Feedback:
    Finding clinical practice guidelines can be challenging, because there is no single guideline repository. A standard search in bibliographic databases such as MEDLINE will yield many references—but could yield a mixture of citations to not only the actual guidelines, but also to commentaries, implementation studies, and so on.
    A recommended approach is to search in guideline databases, or through specialty organizations that have sponsored guideline development. In the United States, nursing and health-care guidelines are maintained by the National Guideline Clearinghouse (www.guideline.gov). In Canada, the Registered Nurses Association of Ontario (RNAO) (www.rnao.org/bestpractices) maintains information about clinical practice guidelines. Two sources in the United Kingdom are the Translating Research into Practice (TRIP) database and the National Institute for Clinical Excellence (NICE).

16. Which of following study types is a systematic review used for integration of statistical quantitative research findings?
    A) Meta-synthesis
    B) Meta-analysis
    C) Randomized controlled trial
    D) Quasi-experiment
    Ans: B
    Feedback:
    Systematic reviews can take various forms. One form is a narrative (qualitative) integration that merges and synthesizes findings, much like a rigorous literature review. For integrating evidence from quantitative studies, narrative reviews increasingly are being replaced by a type of systematic review known as a meta-analysis. Meta-analysis is a technique for integrating quantitative research findings statistically. For qualitative studies, integration may take the form of a meta-synthesis. A meta-synthesis, however, is distinct from a quantitative meta-analysis: a meta-synthesis is less about reducing information and more about interpreting it. Randomized controlled trials and quasi-experiments are not types of systematic reviews.

17. The best-known early research utilization (RU) project sought to bridge the gap between research and practice. Which following is the name of that well-known project?
    A) Cochrane Collaboration
    B) Stetler Model of Research Utilization
    C) Conduct and Utilization of Research in Nursing (CURN) Project
    D) Promoting Action on Research Implementation in Health Services
    Ans: C
    Feedback:
    Recognition of the gap between research and practice led to formal attempts to bridge the gap. The best-known of several early RU projects is the *Conduct and Utilization of Research in Nursing (CURN) Project*, which was awarded to the Michigan Nurses' Association by the Division of Nursing in the 1970s. The Stetler Model of Research Utilization and Promoting Action on Research Implementation in Health Services are evidence-based practice models, not projects. One keystone of the EBP movement is the Cochrane Collaboration, which was founded in the United Kingdom based on work by British epidemiologist Archie Cochrane. It is not a research utilization project.

18. The Iowa Model identifies problem-focused triggers for implementing an EBP project. Which of the following is a problem-focused trigger in the Iowa Model?
    A) A finding published recently in a nursing journal
    B) A new clinical guideline issued by a federal agency
    C) An increase in latex allergy among emergency room nurses
    D) Questions from hospital committee
    Ans: C
    Feedback:
    Several models of EBP, such as the Iowa Model, have distinguished two types of stimulus ("triggers") for an EBP endeavor—(1) *problem-focused triggers*—the identification of a clinical practice problem in need of solution, or (2) *knowledge-focused triggers*—readings in the research literature. A second catalyst for an EBP project is the research literature—knowledge-focused triggers, which is the origin akin to research utilization. The catalyst might be a new clinical guideline or a research article discussed in a journal club.

19. As a nurse, you must understand the difference between research utilization and evidence-based nursing practice. Which of the following best defines evidence-based practice?
    A) Begins with research itself, clinical expertise, and patient preference
    B) Uses new evidence and translates research findings into real-world applications
    C) Uses findings from disciplined research in practical application unrelated to original research
    D) Integrates best research evidence, with clinical expertise, patient preference, and a particular clinical situation
    Ans: D
    Feedback:
    Advocates of EBP do not minimize the importance of clinical expertise. Rather, they argue that evidence-based decision-making should integrate best research evidence with clinical expertise, patient preferences, and local circumstances. Research utilization (RU) is the use of findings from disciplined research in a practical application that is unrelated to the original research. In research utilization, the emphasis is on translating research findings into real-world applications. The starting point in RU is new evidence or a research-based innovation. EBP is broader than RU because it integrates research findings with other factors. Whereas RU begins with the research itself (how can I put this innovation to good use in my clinical setting?), EBP starts with a clinical question (what does the evidence say is the best approach to solving this problem?).

20. Some EBP models recommend a formal assessment of organizational "fit," known as implementation potential, when an organization is considering undertaking an EBP project. Which following issue is of particular importance to address to determine the implementation potential of the EBP project for the organization?
    A) Effectiveness of the innovation
    B) Nurses' attitude toward the innovation
    C) Patient benefit of the innovation
    D) Transferability of the innovation
    Ans: D
    Feedback:
    Some EBP models recommend a formal assessment of organizational "fit," often called implementation potential (or, *environmental readiness*). In determining the implementation potential of an innovation in a particular setting, several issues should be considered, particularly the transferability of the innovation (i.e., the extent to which the innovation might be appropriate in new settings), the feasibility of implementing it, and its cost-benefit ratio.

21. A nurse is observing how the time of feeding impacts an inpatient's gastric reflux. In which of the following steps of the EBP process would the nurse determine whether a specific feeding time alleviated the patient's gastric reflux symptoms?
    A) Searching for and collecting evidence that addresses the question
    B) Appraising and synthesizing the evidence
    C) Integrating the evidence with own clinical expertise, patient preferences, and local context
    D) Assessing the effectiveness of the decision, intervention, or advice
    Ans: D
    Feedback:
    It would be during step 5 of the EBP process, assessing the effectiveness of the decision, intervention, or advice, that the nurse would determine whether a specific feeding time (an intervention) is effective in alleviating the patient's gastric reflux symptoms.

22. After an institutional project has been developed, the next step is to conduct a pilot study (a trial study). Based on the Iowa Model, which step would identify the success or failure of a pilot study?
    A) Developing an evaluation plan
    B) Measuring client outcomes prior to implementation
    C) Training relevant staff in the use of the new guideline
    D) Evaluating the project in terms of both the process and the outcomes
    Ans: D
    Feedback:
    The success or failure of the pilot study would be assessed in the evaluation of the study, which is the last step. The other answers refer to earlier steps in the implementation of the study.

23. A narrative integrated review of qualitative studies focuses on interpretation of the studies. Which of the following study types would be considered an systematic integrated review of qualitative studies?
    A) Meta-synthesis
    B) Meta-analysis
    C) Randomized controlled trial
    D) Quasi-experiment
    Ans: A
    Feedback:
    Systematic reviews can take various forms. One form is a narrative (qualitative) integration that merges and synthesizes findings, much like a rigorous literature review. For integrating evidence from quantitative studies, narrative reviews increasingly are being replaced by a type of systematic review known as a meta-analysis. Meta-analysis is a technique for integrating quantitative research findings statistically. For qualitative studies, integration may take the form of a meta-synthesis. A meta-synthesis, however, is distinct from a quantitative meta-analysis: a meta-synthesis is less about reducing information and more about interpreting it. Randomized controlled trials and quasi-experiments are not types of systematic reviews.

24. The Iowa Model identifies several knowledge-focused triggers for implementing an EBP project. Which following statement is considered a knowledge-focused trigger in the Iowa Model?
    A) A report in the New England Journal of Medicine regarding a potential flu epidemic
    B) Readmission rate of heart failure patients
    C) Poor patient survey results
    D) Increase in pediatric falls
    Ans: A
    Feedback:
    Several models of EBP, such as the Iowa Model, have distinguished two types of stimulus ("triggers") for an EBP endeavor—(1) *problem-focused triggers*—the identification of a clinical practice problem in need of solution, or (2) *knowledge-focused triggers*—readings in the research literature. A report in a medical journal regarding a potential flu epidemic is an example of a reading in a research literature, and thus would be a knowledge-focused trigger. The other answers are examples of problem-focused triggers.

25. Which of the following is the best resource to use when beginning the search for evidence necessary for an individual EBP project?
    A) Hayat, M. (2010). Understanding statistical significance. *Nursing Research*, 59(3), 219-223.
    B) Durbin, C. R., Fish, A. F., Bachman, J. A., & Smith, K. V. (2010). Systematic review of education intervention for improving advanced directive completion. *Journal of Nursing Scholarship*, 42, 234-241.
    C) Polit, D. R., & Beck, C. T. (2014). *Essentials of Nursing Research*: *Appraising Evidence for Nursing Practice (*8th *ed.).* Philadelphia: Wolters Kluwer| Lippincott Williams & Wilkins.
    D) Aggarwal, B., Liao, M., & Mosca, L. (2010). Predictors of physical activity at 1 year in a randomized controlled trial of family members of patients with cardiovascular disease. *Journal of Cardiovascular Nursing, 29*(6), 444-449.

    Ans: B

    Feedback:

    For an individual EBP endeavor, the best place to begin is by searching for evidence in a systematic review, clinical practice guideline, or other preprocessed source because this approach leads to a quicker answer—and, if your methodologic skills are limited, potentially a superior answer as well. Of the answers, only Durbin et al is a systematic review. The study by Aggarwal et al is an individual randomized controlled trial, not a systematic review. The article by Hayat provides general information on statistical significance and does not appear to be primary research. Polit and Beck is the textbook you are using, which is a secondary source, not primary research.