Foundations of Evidence Informed Practice Program Learning Objectives

Section 1: Overview of EIP covers the following learning objectives:

Evidence Informed Practice
1. Identify and describe the components of EIP.
2. Describe how EIP represents the art of clinical practice and the role of the clinician in using research, clinical findings and judgment, and patient preferences in clinical decision making.
3. Given a set of scenarios, identify which demonstrate all the components of EIP and which don’t.
4. Given a patient scenario, propose how the healthcare provider could practice EIP in that situation.

Introduction to Research
1. Define research evidence.
2. Describe the potential perspectives of the researcher in performing research.
3. Given an example, identify the researcher’s perspective and how it may affect the research being presented.
4. List two reasons why articles about research should be appraised for relevance and quality/validity.

Clinical Experience
1. Describe important characteristics of clinical experience, including its strengths
2. Identify at least 3 limitations of relying only on clinical findings and judgement
3. Explain why clinical experience alone is insufficient for making clinical decisions

Patient Presentation
1. Describe important characteristics of the patient presentation (biopsychosocial model).
2. Distinguish between subjective and objective findings.
3. List examples of the biological, psychological, and social aspects of patient presentation.
4. Describe the potential influences of patient perspective on health care.
5. Given an example, identify the patient’s perspective and how it may affect diagnostic and treatment decisions.
6. Describe the strengths and limitations of the patient presentation as a useful form of information.

Section 2: Types of Research covers the following learning objectives:

Research Overview
1. Discuss the concept of an evidence house, where different types of research answer different questions.
2. Discuss the general characteristics of different types of research (basic science, clinical, observational, qualitative, and health services).
3. Discuss how to use an evidence pyramid to determine the quality of different types of research.
4. Define original research and summary research.
5. Describe the general advantages of summary research.
6. Discuss the concept of “useful” research and the usefulness equation.

Basic Science Research
1. List important characteristics of basic science research.
2. Describe strengths of basic science research.
3. Discuss limitations of basic science research.
4. Define biological plausibility.
5. Discuss the role of biological plausibility in knowledge evolution.
Foundations of Evidence Informed Practice Program Learning Objectives

Randomized Clinical Trials (RCTs)
1. Define randomization, blinding and concealed allocation.
2. Given a set of examples, identify randomization, blinding, and other key concepts.
3. List important characteristics of RCTs.
4. Describe at least three strengths of RCTs (including randomization, controlling for known and unknown factors, ability to isolate treatment effects, etc.)
5. Describe at least three limitations of RCTs (including generalizability, time, expense).
6. Describe the types of questions RCTs can address.

Introduction to Observational Research
1. Define observational research.
2. Define key concepts including bias, confounders, prospective and retrospective and association.
3. List the main strengths and limitations of observational research.
4. List the main types of observational research including case reports, cross-sectional studies, case series, case-control studies, and cohort studies.

Types of Observational Research
1. List the main types of observational research including case reports, cross-sectional studies, case series, case control studies, and cohort studies.
2. Recognize important characteristics, including strengths, of case reports, cross-sectional studies, case series, case control studies and cohort studies.
3. Given a set of examples of observational studies, identify which are case reports, cross-sectional studies, case series, cohort studies, and case control studies.

Quantitative & Qualitative Research
1. Describe important characteristics of quantitative research.
2. Describe important characteristics of qualitative research.
3. Describe how quantitative and qualitative research can be used to complement one another.

Summary Research
1. Define summary research.
2. List important characteristics of meta-analyses, systematic reviews, guidelines, and evidence-based textbooks.
3. Describe important strengths and limitations of meta-analyses, systematic reviews, guidelines, and evidence-based textbooks.
4. Describe the types of questions meta-analyses, systematic reviews, guidelines, and evidence-based textbooks can address.
5. Describe important characteristics, strengths, and limitations of narrative reviews.
6. Describe the types of questions narrative reviews can address.

Section 3: Using Evidence in Practice covers the following learning objectives:

Research in Clinical Practice
1. List the three main tasks clinicians need to do so they can effectively use research.
2. Define “useful” research according to the usefulness equation.
3. Identify where to find useful research.
4. Discuss when you might want to consult original research and how to use it.
5. Identify good resources to build one’s knowledge base.
6. Discuss ways to build a knowledge base.
7. Describe how to keep current with research relevant to one’s practice utilizing the most useful research evidence.
Foundations of Evidence Informed Practice Program Learning Objectives

**Asking Clinical Questions**
1. Identify instances where research might be helpful to answer specific clinical questions.
2. Identify and define the elements of the 6A process for asking and answering clinical questions.
3. Define PICO and list the 4 parts.
4. Use PICO to ask a clinical question.
5. List examples of summary sources.
6. Describe why summary sources are most efficient for becoming familiar with large bodies of research.
7. Use PubMed to acquire summary resources and original research.

**Assessing Articles about Treatment**
1. Identify standard sections in articles about treatment.
2. List at least two criteria used to assess a treatment article’s relevance.
3. List at least three criteria used to determine a treatment article’s quality (i.e. validity).
4. Determine the relevance and quality of treatment articles using a standard checklist.

**Assessing Summary Research**
1. List four criteria used to assess relevance of summary research sources.
2. List four criteria used to determine quality (i.e. validity) of summary research sources.
3. Assess the relevance and quality of summary research sources using a standardized checklist.

**Measuring Clinical Outcomes**
1. Define outcome measurement tools/instruments.
2. List criteria for choosing outcome measures in clinical practice.
3. List at least three advantages of using outcome measurement tools in clinical practice.
4. List resources for helping identify the appropriate outcome measures to use in clinical practice.
5. List at least three important practices to follow when using outcome measurement in clinical practice.
6. Given a scenario, identify examples of appropriate administration and scoring of outcome measurement tools.

**Outcome Measurement Tools**
1. Pain (VAS, numerical rating scale)
2. Low back pain disability (Oswestry, Roland Morris)
3. Neck pain disability (Neck Disability Scale)
4. General health status/quality of life (SF-36, SF-12, Euroqol)
5. Satisfaction
6. Global improvement

**Experts**
1. List important characteristics, strengths, and limitations of expert opinion.
2. Identify examples /non-examples of expert opinion.
3. List two reasons why experts should be evaluated for relevance and validity.
4. List at least two criteria used to assess an expert’s relevance.
5. List at least three criteria used to determine the quality of the information an expert offers.
6. Given an example, identify the expert’s perspective and how it may affect the information being presented.
Foundations of Evidence Informed Practice Program Learning Objectives

Section 4: Understanding Research and Statistics covers the following learning objectives:

Validity & Study Quality
1. Describe the broad concepts of validity.
2. Identify the main threats to study validity.
3. Describe the different types of experimental biases (measurement, observation, and sampling bias, etc.) and how they can affect research outcomes.
4. Given a research example, evaluate it for types of biases.
5. Describe ways researchers try to limit different types of bias.

Introduction to Statistics
1. Discuss the role statistics play in healthcare.
2. Define descriptive statistics.
3. Define inferential statistics.
4. Identify commonly used statistical terms.

Describing Results
1. Identify common statistics used to describe continuous outcomes.
2. Discuss why a mean is used and how to calculate it.
3. Describe why a median is used and how to calculate it.
4. Discuss why researchers would choose to report a median instead of a mean.
5. Discuss the importance of variability in statistics.
6. Describe what a range is and how to calculate it.
7. Describe what an interquartile range is and how to calculate it.
8. Define standard deviation and how to identify it in a table of outcomes.

P-Value & Power
1. Describe what a p-value represents and where to find p-values in a research article.
2. Given a set of outcome data, identify a p-value.
3. Define statistical significance in healthcare.
4. Describe how sample size, magnitude of effect, and variability influence p-values.
5. Define power.
6. Identify what level of power is typically used in research and where to find information on power in a research article.
7. Discuss what factors influence power.

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The online learning modules are available at no charge to the user at: http://www.csh.umn.edu/evidenceinformedpracticemodules/index.htm