



Evidence based practice

Dr. Rehab Gwada

Objectives

- Define the ABP
- Identify the steps of the EBP process
- Recognize hierarchy of evidence and types of study design
- Explain how to build focused clinical questions with PICO
- Outline the Evidence–Based literature databases.
- Explain modified Critical Appraisal of a Topic.

Definition

EBP is the integration of clinical expertise, patient values, and the best research evidence into **the decision making process for patient care**. IT enhances the chance for optimal clinical outcomes and quality of life.



EBP

- **Clinical expertise** refers to the clinician's experience, education and clinical skills.
- **The patient** brings to the encounter his or her own personal preferences and unique concerns, expectations, and values.
- **The best research evidence** is usually found in clinically relevant research that has been conducted using sound methodology.

Evidence-Based Practice requires new skills of the clinician:

- **efficient literature searching,**
- **the application of formal rules of evidence in evaluating the clinical literature**

EBP

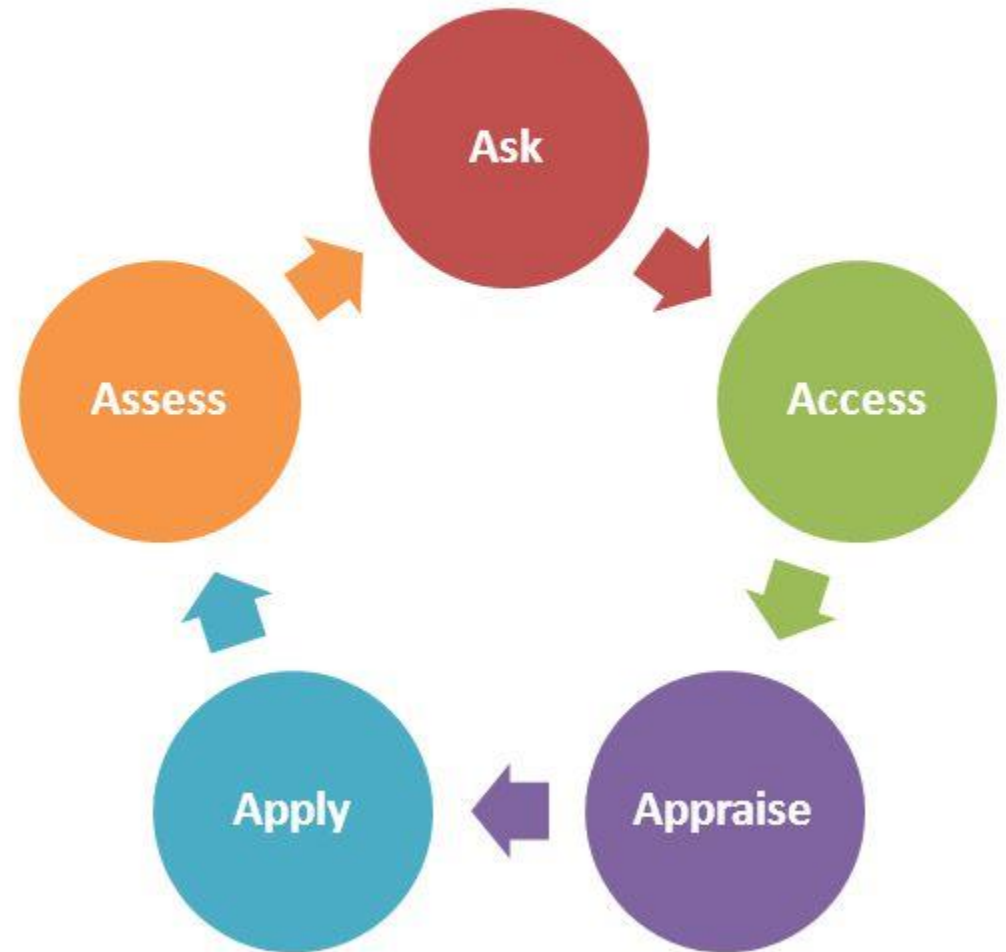
- The practice of EBP generate questions about the effects of therapy, the utility of diagnostic tests, the prognosis of diseases, and/or the etiology of disorders.

Why is evidence based important?

- Ensures patient/clients receive the care that fits their needs .
- Facilitates sound decision making and makes it more explicit
- Minimises risk to the patient/client so that benefits outweigh harm.
- Provides the P.T. with the skills and knowledge to evaluate healthcare literature and practice.
- Exposes gaps in knowledge and conflicts in evidence.

The 5 Step EBP Process

1. **ASK:** Formulate an answerable clinical question
2. **ACCESS:** Track down the best Evidence
3. **APPRAISE:** Appraise the evidence for its validity and usefulness
4. **APPLY:** Integrate the results with your clinical expertise and your patient values/local conditions
5. **ASSESS:** Evaluate the effectiveness of the process



Asking the Well Built Clinical Question

- A clinical question should be directly relevant to the problem. Using the PICO format.
- **P** = Patient, population or Problem
- **I** = Intervention
- **C** = Comparison intervention or exposure, when relevant
- **O** = Outcome

Case

- **A 40 year old female with a long history of obesity. Over the years she has tried numerous diets and exercise programs to reduce his weight but has not been very successful. She asked you if she can make stomach stapled to reduce weight .**

OUR CASE:

P obese, 40 year old female

I stomach stapling (gastric bypass surgery)

C standard medical care

O weight loss

For our patient, the clinical question might be:

In patients with obesity, is stomach stapling more effective than standard medical therapy at increasing the probability of weight loss?

Hierarchy of Evidence

- Systematic reviews and meta-analyses constitute a comparative analysis of research and are at the apex of the pyramid.
- The systematic review of several randomized trials has become the “gold standard” for judging whether a treatment does more good than harm.



Study types in health science



Strength of conclusions 


Experimental	SYSTEMATIC REVIEW & META-ANALYSIS	Collects all previous studies on the topic and statistically combines their results
	RANDOMIZED-CONTROLLED TRIAL	Randomly selects a group of patients to receive a treatment and another to receive placebo
	QUASI- EXPERIMENT	Non-randomly assigns groups of patients to receive either a treatment or placebo
Observational	COHORT STUDY	Follows a group of people to track risk factors and outcomes over time
	CASE-CONTROL STUDY	Compares histories of a group of people with a condition to a group of people without
	CROSS-SECTIONAL SURVEY	Assesses the prevalence of an outcome in a broad population at one point in time
	CASE REPORTS	Detailed histories of a small number of individual cases

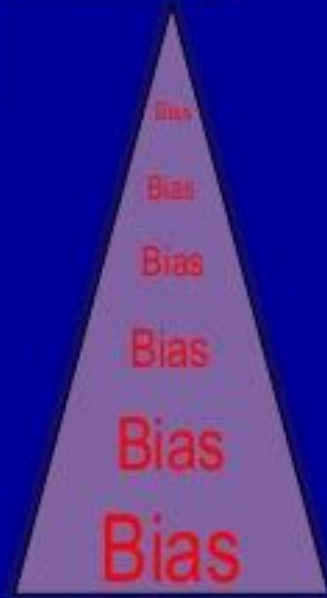
case

- For our patient, the clinical question is:
- In patients with obesity, is stomach stapling more effective than standard medical therapy at increasing the probability of weight reductions ?
- It is a **therapy question** and the best evidence would be a **randomized controlled trial (RCT)**. If we found numerous RCTs, then we might want to look for a **systematic review**

Level of evidence

Validity/Strength of Inference

Levels of evidence	Oxford Centre of EBM
Ia	Systematic reviews (meta-analyses) of RCTs
Ib	Randomized controlled trials
II	Cohort studies
III	Case-control-studies
IV	Case-series
V	Expert opinion



EBP Literature Databases

- **PubMed's Clinical Queries**
 - search tool that quickly locates EBP journal articles
 - uses study question categories
 - includes appropriate study designs
- **PEDro (physical therapy)**
 - abstracts of randomized controlled trials, systematic reviews, and practice guidelines in physiotherapy
 - links to full text articles where possible .
- **CINAHL**
 - Link to online journals and full-text articles (list citation)
 - Easy to understand search page.
- **Cochrane Library**
 - collection of databases with rigorous, current research on the effectiveness of treatments, interventions, methodology, and diagnostic tests.
- **APTA`s Hooked in evidence**
 - Hooked focus on PT research (the effectiveness of, interventions)

Critical Appraisal of a Topic

- The CAT is a structured format to provide a critique of the research on a clinical topic of interest.
- For this class we will use a modified CAT format to examine single studies

Background information

- What is the Title of the article and what year was it published in?
- What is the level of evidence?
- What is the aim of the studies?
 - What is the hypotheses if it is stated?

Method

- What was the study design?
- Who were the subjects?
 - Describe the participants in the study (age, diagnosis, severity of disability, number of participants)?
 - Exclusion and inclusion criteria?
 - Did the groups have similar sociodemographic, clinical, and prognostic characteristics at the start of the study?(yes, no, insufficient details)
 - Were subjects masked (or blinded) to their group assignment? (yes, no, insufficient details)

Method

- What was the intervention(independent variables)?
 - Type, frequency, duration, intensity
- What was the control if there was one?
 - Type, frequency, duration, intensity
- Were clinicians and /or outcome assessors masked (or blinded) to subjects` group assignment? (yes, no, insufficient details)

Method

- Did the investigators manage all of the groups in the same way except for the experimental intervention(s)? (yes, no, insufficient details)
- Did the investigators apply the study protocol and collect follow-up data on all subjects over a time frame long enough for the outcomes of interest to occur?

Methods

- What were the outcome measures used (dependent variable)?
 - List all outcomes[primary and/or secondary] (balance, ROM, gross functional activities...
 - instruments used is described or pictured ; reliability and validity reported ?

Dependent vs Independent Variable

Dependent variable= The variable that changes in relationship to changes in another variable (**Response, outcomes**).

Independent variable =The variable whose change results in the change in another variable (**Intervention or treatment**)

Method/ Data Analysis

- What statistical analyses were used?
- Acceptable probability levels set (P value)?
- **NB:**
- A p value of 0.05 or less is considered to be “statistically significant” or unlikely to occur due to chance alone.

Results:

When comparing the intervention group and the control (competence) group:

- Did the intervention improve (had an affect) on the outcome measure more than the competence group or less?
- Did the intervention group have an effect (improve or worse) all out come measures or only some when compared with the competence group?

Results

- Did the effect of the intervention (study group) last after the intervention have been stopped (follow up period) or was there no affect after?
- **Response rate ?**
- **Attrition rate ?** Indicate why people dropped out?

Discussion

- Explanation and Comparison of the findings ?
- Makes practical suggestions for clinical application of results?
- Suggests follow-up research?
- Include study limitation?

Application to your patient/client

- Can you perform the intervention of interest safely and appropriately in your clinical setting given your current Knowledge and skill level and your current resources? (Yes, no, insufficient) why?
- Does the intervention of interest fit within the patient/client`s expressed values and preferences? (Yes, no, insufficient) why?
- Will you use the intervention of interest for this patient/client? (Yes, no) why?

References

- Jewell DV. Guide to evidence- based physical therapist practice . 3rd ed. Jones & Bartlett learning, LLC, an Asend learning company ,2015.
- Domholdt E: Physical Therapy Research: Principles and Applications, 2nd ed. Wb Saunders Company, 2000.