Evidence-Based Practice...What Is It and How Do I Do It?

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Our professional organization has embraced the concept of evidence-based practice (EBP), but it is unclear how far the use of EBP has extended beyond the American Physical Therapy Association (APTA) and academia into clinical practice. Evidence-based practice is a professional responsibility that is in its infancy in our professional culture. But, for those who have adopted the concepts of EBP, it has become a critical component of quality care. Evidence-based practice can guide practitioners to the most efficient, consistent, and highest quality practice. However, it is still not clear to some practitioners what EBP really is, how it is done, and why they should do it.

What is EBP? Many clinicians may be under the misconception that EBP is based solely on data obtained from research. In fact, as defined by Sackett et al,[6] evidence-based practice is ''the integration of best research evidence with clinical expertise and patient values.'' So, while evidence derived from research is a crucial component of EBP, patient preferences, clinical circumstances, and therapist experience and judgment also play a critical role in clinical decision making. Incorporation of EBP into practice does not mean adopting cookbook practice. Each patient problem is a distinct entity. Patients respond to intervention differently based upon the pathology, the course of the problem, the socio-cultural-economic background of the patient, the goals of the patient, and the skill level of the therapist. All of these patient-specific considerations must be combined with research evidence and expertise for the clinician to formulate a decision, in conjunction with the patient, on best care.

How is EBP done? While daily interactions with patients may provide a progressive increase in clinical expertise, the component of EBP related to research often requires a more systematic approach, frequently extending beyond regular clinical hours and duties. Reading a journal on a consistent basis or attending continuing education courses does not constitute EBP. Knowledge gained from these sources must be applied to a specific patient problem, which takes the form of a clinical question. Table 1 provides an outline of the necessary steps to take in the process of gathering information related to EBP. Typical questions arise from practice areas such as diagnosis, prognosis, intervention, and etiology/harm. Components of the question typically include the patient or problem, the practice area, and the desired outcome.[5,6]

TABLE 1. The steps of evidence-based practice. Adapted from Bury and Mead.[1]

Steps	Actions
1	Convert a patient problem into a specific question
2	Search the literature for evidence related to the question
3	Critically appraise the pertinent literature
4	Integrate the appraisal of the literature with the clinician's expertise and the patient's circumstances and values (informed and shared decision making) to make a decision about clinical care
5	Incorporate the information and decision into clinical practice
6	Re-evaluate the outcome, and ask another question if needed

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There are 2 different routes a clinician can take when searching the literature for evidence related to a specific question. The first route is to use a specialized database that has already answered that specific question. The second route is to personally perform the systematic search and appraisal of the literature for the individual components of the specific patient problem being asked.

Use of specialized databases that have already asked a question, searched and appraised the articles, and formulated a recommendation for practice is optimal. Table 2 provides a short list of specialist databases that can be useful in that regard. The Cochrane and Database of

TABLE 2. Experimental study designs and related databases to answer a patient-related question.

Study Design*	Characteristics of Study†	Database‡
	Secondary Studies	Specialist
Meta-Analysis	Integrate the numerical data from numerous primary studies–a systematic review with a statistical component.	* Cochrane Database of Systematic Reviews: Systematic reviews and peer-reviewed summaries of randomized control trials (RCT) * Database of Abstracts of Reviews of Effectiveness (DARE)
Systematic Review	Summarize primary studies according to rigorous and pre-defined methodology.	—
Clinical Guidelines	Draw conclusions from primary studies about clinical practice.	* Hooked on Evidence: A new APTA database that can provide abstracts and summarize articles related to a specific physical-therapy-related problem. Appraisal of the articles and practice recommendations will be added to the database at a later time. * Patient Oriented Evidence That Matters (POEMS): Family practice database that appraises and summarizes articles related to a specific medical problem. May be appropriate for a pathology/etiology question.
	Primary Studies	Standard
Randomized Control Trial (RCT)	Most rigorous experimental design, allowing for potential statement of cause and effect. Subjects are randomized and bias is controlled. Best for diagnosis and intervention questions. —	* Medline is the primary database for medical literature. PubMed is the free search engine that can be used to access this database. * Cumulated Index of Nursing and Allied Health Literature (CINAHL): Similar to Medline, but with an allied health focus. * HealthSTAR: Focuses on both clinical and non-clinical aspects of health care delivery. More administrative. * PEDro is an Australian database that critically reviews articles related to physical therapy practice, but does not provide a systematic review or recommendation for practice.
Cohort Studies	Begun on a group of subjects that may or may not develop problem. Studies may be longitudinal, with data collected over a period of time. Best for prognosis and etiology questions.	—
Case-Control Series	Subjects with a "problem" are matched with control subjects in an attempt to determine the genesis of the problem. Best for etiology questions.	—
Case Studies	Describe the course of care of a single patient, typically with an unusual problem or a new intervention.	—

*Note that study designs are presented in hierarchical format, with the best study type for evidence-based practice at the top of the table. The most relevant studies are considered to have the most rigorous design and a strong applicability to the patient problem.
†Adapted from Greenhalgh.[4]
‡Adapted from Bury and Mead.[1]

Abstracts of Reviews of Effectiveness (DARE) databases assemble and appraise several articles related to a specific patient problem or intervention. Each of these databases is a great place to start an EBP related search. It is true that many questions related to physical therapy practice have not been asked and answered in these databases. However, information is being added to these databases on a regular basis.

When the answer to a question is not readily available through databases devoted to EBP, an independent search and review of the literature must be performed. Table 2 provides a list of specialist and standard databases useful for that process and also provides a summary of the relative strength of various study designs. While the task of searching and appraising the literature may seem daunting, it can be done. After practice, the process of asking a meaningful question and searching for 3–5 appropriate articles should take only about 15 minutes. The appraisal process takes longer and realistically may need to be completed outside the work hours. Hence, the concept of EBP as professional responsibility is crucial. There are many resources, online tutorials, and continuing education courses available to gain skill in asking questions and seeking evidence. A few of those resources are presented in Table 3.

Realistically, physical therapy can still be considered a developing profession in terms of science, and the scientific evidence needed to perform a review and make a recommendation is frequently inadequate. The practitioner must then seek the most appropriate evidence available on the various aspects of the question and then use clinical judgment, expertise, and patient preferences to bridge the gaps. Absence of literature related to a patient intervention

TABLE 3. Databases and other resources that facilitate searches related to evidence-based practice. Adapted from Forrest and Miller.[2]

Resources	URL
Search Engines	
Yahoo	http://www.yahoo.com
Alta Vista	http://www.altavista.com
Lycos	http://www.lycos.com
AskJeeves	http://www.askjeeves.com
Google	http://www.google.com
SUMSearch	http://SUMSearch.uthscsa.edu
OVID	Dependent on holder of license
Databases	
PubMed	http://www.ncbi.nlm.nih.gov/PubMed
Medline Plus	http://medlineplus.gov
Internet Grateful Med V2.6.3	http://igm.nlm.nih.gov
Combined Health Information	http://chid.nih.gov
PEDro	http://ptwww.cchs.usyd.edu.au/pedro
Hooked on Evidence	http://www.apta.org/hookedonevidence/index/cfm
National Guideline Clearinghouse	http://www.guideline.gov/index.asp
US National Library of Medicine	http://www.nlm.nih.gov
POEMS	http://www.jfampract.com
Professional Organizations	
American Physical Therapy Association	http://www.apta.org
American Academy of Physical Medicine and Rehabilitation	http://www.aapmr.org
Agency for Healthcare Research and Quality	http://www.ahcpr.gov
American College of Sports Medicine	http://www.acsm.org/index.asp
Tutorials	
UNC Evidence-Based	http://www.hsl.unc.edu/ebm/index.htm
Duke Evidence-Based	http://www.mc.duke.edu/mclibrary/respub/guides/ebm.html
Internet and Web	http://jeffline.tju.edu/CWIS/DEPT/OEM/JOEMP/informatics
Evidence Based Medicine Working Group (EBM toolkit)	http://www.med.ualberta.ca/ebm
Evidence Based News	http://www.usc.edu/hsc/ebnet
Case Studies	
Evidence-Based Occupational Therapy	http://www.library.utoronto.ca/medicine/ebm/syllabi/occ
Evidence-Based Physical Therapy	http://www.library.utoronto.ca/medicine/ebm/syllabi/physio
PT Central	http://www.ptcentral.com

does not mean the intervention is not appropriate. Reliance on patient perspectives and clinical expertise is crucial at these times. Alternatively, if literature is available that shows that an intervention is not beneficial, then we must consider not using this intervention for this particular patient.

One suggestion to help incorporate EBP into the clinical culture is to modify the conventional journal club. Typically, members pick an article or 2 for everyone to read and appraise. Although the article may be good for background knowledge, it may not be directly relevant to practice. Alternatively, pick a question that one of the members has about a current patient. Have each member perform a relevant search, then pick an article to appraise and discuss. At the end of the session, the group has several articles that are pertinent to a specific patient problem and a consensus for practice recommendation can be made. Each journal club session can add to a notebook that chronicles the group's work, decreasing the need to repeat similar searches in the near future.

Why should we use EBP? Evidence-based practice can improve quality, effectiveness, and appropriateness of clinical practice. Practicing EBP can reduce variations in practice patterns that are a result of geographical differences or gaps between current knowledge and its application to care.[3] Evidence-based research that includes statistical probability of improvement using a proposed intervention is commonly applied in medicine. Given diminishing resources for our services, we must substantiate the care provided to third-party payers by using this kind of science. In addition, patients are becoming savvy in finding and evaluating research and other information related to their problems. Evidence-based practice takes advantage of the patients' knowledge and opinions and it makes the shared decision making process more explicit. Finally, EBP provides a framework for lifelong, self-directed learning that is crucial for continued provision of quality care in physical therapy.

References

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