

I
Part

PRINCIPLES OF EVIDENCE-BASED
PHYSICAL THERAPY PRACTICE

Evidence-Based Physical Therapy Practice

Nothing could be more humanistic than using evidence to find the best possible approaches to care.

—Jules Rothstein, PT, PhD¹

OBJECTIVES

Upon completion of this chapter the student/practitioner will be able to:

1. Discuss the circumstances that have resulted in an increased emphasis on the use of evidence in practice.
2. Distinguish among definitions of evidence-based medicine, evidence-based practice and evidence-based physical therapy.
3. Discuss the use of evidence in physical therapy decision-making in the context of the *Guide to Physical Therapist Practice*.²
4. Describe evidence-based physical therapy focus areas.
5. Describe the general steps involved in evidence-based physical therapy practice.
6. Discuss the barriers to evidence-based physical therapy and possible strategies for reducing them in clinical practice.

TERMS IN THIS CHAPTER

Clinical Expertise: Proficiency of clinical skills and abilities, informed by continually expanding knowledge, that individual clinicians develop through experience, learning, and reflection about their practice.^{3,4}

Diagnosis: “A process that integrates and evaluates data” obtained during a patient/client examination, often resulting in a classification that guides prognosis, the plan of care, and subsequent interventions.^{2(p. 45),4}

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Disability: “The inability or restricted ability to perform actions, tasks, and activities related to required self-care, home management, work (job/school/play), community, and leisure roles in the individual’s socio-cultural context and physical environment.”^{2(p. 31)}

Evaluation: “A dynamic process in which the physical therapist makes clinical judgments based on data gathered during the examination.”^{2(p. 43)}

Evidence: “Any empirical observation about the apparent relation between events constitutes potential evidence.”^{5(p. 6)}

Examination: “A comprehensive screening and specific testing process leading to diagnostic classification or, as appropriate, referral to another practitioner.”^{2(p. 42)}

Functional Limitations: “Occur when impairments result in a restriction of the ability to perform a physical action, task or activity in an efficient, typically expected, or competent manner.”^{2(p. 30)}

Impairment: “Alterations in the anatomical, physiological or psychological structures or functions that both (1) results from underlying changes in the normal state and (2) contributes to illness.”^{2(p. 30)}

Intervention: The purposeful use of various physical therapy procedures and techniques, in collaboration with the patient/client and, when appropriate, other care providers, in order to effect a change in the patient/client’s condition.²

Outcome: “The end result of patient/client management, which include the impact of physical therapy interventions;” may be measured by the physical therapist or determined by self-report from the patient/client.^{2(p. 43)}

Pathology: A disease, disorder, or condition that is “primarily identified at the cellular level” and is “(1) characterized by a particular cluster of signs and symptoms and (2) recognized by either the patient/client or the practitioner as ‘abnormal.’”^{2(p. 29)}

Patient-Centered Care: Health care that “customizes treatment recommendations and decision making in response to patients’ preferences and beliefs. . . . This partnership also is characterized by informed, shared decision making, development of patient knowledge, skills needed for self-management of illness, and preventive behaviors.”^{6(p. 3)}

Prevention: Activities that attempt to (1) prevent a “target condition in susceptible or potentially susceptible populations” (primary prevention); (2) decrease the “duration of illness, severity of disease, and sequelae through early diagnosis and intervention” (secondary prevention), and (3) limit “the degree of disability and promote rehabilitation and restoration of function in patients with chronic and irreversible diseases” (tertiary prevention).^{2(p. 41)}

Prognosis: Prediction of the natural course of a condition, or its development based upon previously-identified risk factors; also, “the predicted optimal level of improvement through intervention and the amount of time required to achieve that level.”^{2(p. 46)}

INTRODUCTION

Use of *evidence* in clinical decision-making is promoted extensively across health care professions and practice settings. Gordon Guyatt, MD, David L. Sackett, MD, and their respective colleagues have published the definitive works that instruct physicians in the use of evidence in medical practice.^{5,7} In addition, federal agencies including the Agency for Healthcare Research and Quality and the Centers for Medicare and Medicaid Services evaluate the strength of published evidence during the development of health care policies and clinical guidelines.^{8,9} Professional associations such as the American Medical Association, the American Heart Association, and the American Occupational Therapy Association have developed resources to help their members and consumers access evidence regarding a wide variety of diseases, treatments, and outcomes.^{10,11,12}

The physical therapy profession also has expressed a commitment to the development and use of evidence. The American Physical Therapy Association envisions that by the year 2020 physical therapists will be autonomous practitioners that, among other things, use evidence in practice.¹³ Numerous articles regarding the methods for, benefits of, and barriers to evidence-based practice have been published in the journal *Physical Therapy*.^{14,15,16,17} For several years the journal also included a recurring feature “Evidence in Practice” in which a patient case was described and the subsequent search for, evaluation and application of evidence was illustrated.¹⁸ Finally, the American Physical Therapy Association has created “Hooked on Evidence,” a database of research articles regarding physical therapy interventions, for use by its members in clinical practice.¹⁹

The ground swell of interest in the use of evidence in health care has resulted from the convergence of multiple issues, including: a) extensive documentation of apparently unexplained practice variation in the management of a variety of conditions; b) the continued increase in health care costs disproportionate to inflation; c) publicity surrounding medical errors; d) identification of potential or actual harm resulting from previously approved medications; and e) trends in technology assessment and outcomes research.^{20,21,22,23} In addition, the rapid evolution of Internet technology has increased both the dissemination of and access to health care research. Related issues have stimulated the drive for evidence-based physical therapy practice, the most important of which is the use of evidence by commercial and government payers as a basis for their coverage decisions. For example, the American Physical Therapy Association was able to convince the Centers for Medicare and Medicaid Services to approve Medicare benefit coverage for electrical stimulation to treat chronic wounds based on

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the evidence submitted demonstrating the effectiveness of this technique.²⁴ In light of these important developments, physical therapists should have an understanding of what evidence-based practice is, how it works, and how it may improve their clinical practice.

EVIDENCE-BASED WHAT?

The use of evidence in health care is referred to by a variety of labels with essentially similar meanings. “Evidence-based medicine,” a term relevant to physicians, is defined as: “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available clinical evidence from systematic research.”^{3(p. 71)}

“Evidence-based practice” and “evidence-based healthcare” are labels that have been created to link the behavior described by evidence-based medicine to other health care professionals. Hicks provides this expanded definition: “care that ‘takes place when decisions that affect the care of patients are taken with due weight accorded to all valid, relevant information.’”^{25(p. 8)} In both definitions, evidence does not replace *clinical expertise*; rather, evidence is used to inform more fully a decision-making process in which expertise provides one perspective to the clinical problem.

Regardless of the label used, the implicit message in all cases is that the use of evidence in clinical decision making is a movement away from unquestioning reliance upon knowledge gained from authority or tradition. Authority may be attributed to established experts in the field, as well as to revered teachers in professional training programs. Tradition may be thought of as practice habits expressed by the phrase “this is what I have always done.” Habits may be instilled by eminent authority figures, but also they may be based upon local or regional practice norms that are reinforced by their use in payment formulas (“usual and customary”) and in legal proceedings (“local standard of care”). Knowledge derived from these sources often reflects an initial understanding of clinical phenomena from which diagnostic and treatment approaches are developed based on biological plausibility (“this is how the body works”) and anecdotal experience. As such, this form of knowledge will continue to have a role as new clinical problems are encountered that require new solutions. The fundamental weakness in a clinician’s dependence on this type of knowledge, however, is the potential for selection of ineffective, or even harmful, treatments as a result of the lack of inquiry into their “true” effects.

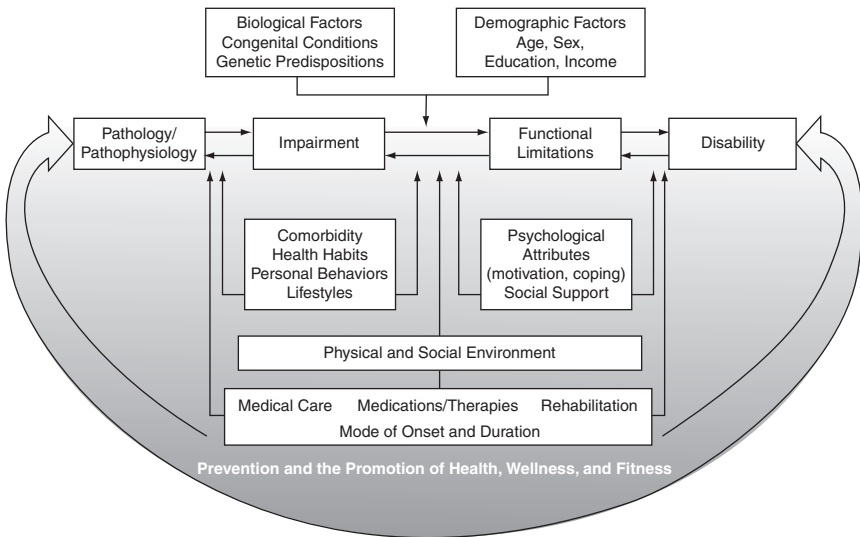
Straus *et al.* offer as an example the use of hormone replacement therapy in women without a uterus or those who are post-menopausal.²⁶ Women in these situations were observed to have an increased risk of heart disease that, from a biological perspective, appeared connected to the loss of estrogen and progesterone. Replacing the lost hormones in an effort to reduce the risk of heart disease in these women made sense. The success of this treatment was confirmed further by observational studies and small randomized controlled trials.²⁷ However, the early termination in 2002 of a large National Institutes of Health-sponsored hormone replacement therapy trial challenged the concept of protective effects from this intervention. The study's initial results indicated, among other things, that estrogen replacement *did not* protect post-menopausal women against cardiovascular disease as had been hypothesized. Moreover, long-term estrogen plus progesterone therapy increased a woman's risk for the development of heart attacks, strokes, blood clots, and breast cancer.²² In effect, years of clinical behavior based upon a biologically plausible theory supported by lower quality evidence were invalidated by a well-designed piece of evidence. This example is extreme, but it makes the point that health care providers should willingly and knowingly re-evaluate the assumptions that underlie practice that is based on authority and tradition supported by limited evidence.

EVIDENCE-BASED PHYSICAL THERAPY PRACTICE

With that background in mind, this text has adopted the term "Evidence-Based Physical Therapy Practice" (EBPT) in order to narrow the professional and clinical frame of reference. The definition of EBPT should be consistent with previously established concepts regarding the use of evidence, but also should reflect the specific nature of physical therapy practice.

The *Guide to Physical Therapist Practice, 2nd edition* establishes physical therapy as a profession that is grounded in an expanded disablement model originally articulated by Nagi,² illustrated here in Figure 1-1. This model reflects the clinical aspects of a patient/client's situation, as well as the social context that shapes perceptions of illness and disability for each individual. Within this framework physical therapists examine, evaluate, diagnose, prognosticate, and intervene with individuals with identified *pathology, impairments, functional limitations* and *disabilities*, as well as with persons with health, *prevention*, and wellness needs. These professional behaviors are summarized in the term "patient/client management." Finally, the management process incorporates the individual patient or client as a participant whose knowledge, understanding, goals, preferences, and appraisal of their situa-

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^aAdapted with permission of the American Physical Association from Guccione AA. Arthritis and the process of disablement. *Phys Ther.* 1994; 74:410.

Figure 1–1 An expanded disablement model, showing interactions among individual and environmental factors, prevention, and the promotion of health, wellness, and fitness.^a

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tion are integral to the development and implementation of a physical therapy plan of care.

A definition of EBPT that reflects the intent of evidence-based medicine as well as the nature of physical therapy practice is offered here:^{2,28}

Evidence-based physical therapy practice is “open and thoughtful clinical decision-making” about the physical therapy management of a patient/client that integrates the “best available evidence with clinical judgement” and the patient/client’s preferences and values, and that further considers the larger social context in which physical therapy services are provided, to optimize patient/client outcomes and quality of life.

The term “open” implies a process in which the physical therapist is able to articulate in understandable terms the details of his or her recommendations including the: 1) steps taken to arrive at this conclusion; 2) underlying rationale; and, 3) potential impact of taking, and of refusing action. “Thoughtful clinical decision-making” refers to the physical therapist’s appraisal of the risks and benefits of various options within a pro-

fessional context that includes ethics, standards of care, and legal or regulatory considerations.²⁹ “Best available evidence” will be operationally defined in Chapter 2. “Preferences and values” are the patient/client’s “unique preferences, concerns and expectations”⁷ against which each option should be weighed and which ultimately must be reflected in a collaborative decision-making process between the therapist and the patient/client. This point is consistent with the emphasis on *patient-centered care* as articulated by the Institute of Medicine.⁶ Finally, “larger social context” refers to the social, cultural, economic, and political influences that shape health policy including rules governing the delivery of and payment for health care services.³⁰ Figure 1–2 provides an illustration of EBPT.

Evidence-Based Physical Therapy Practice Focus Areas

A clinician interested in evidence-based physical therapy practice rightly might ask “evidence for what?”. The patient/client management model

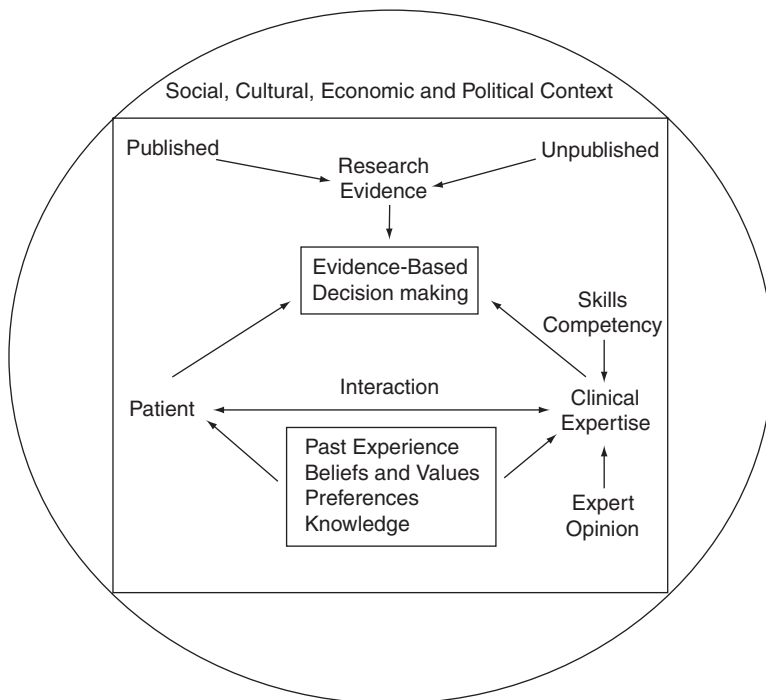


Figure 1–2 Evidence-based physical therapy practice in a societal context.

Source: Reprinted from *Evidence-Based Healthcare: A Practical Guide for Therapists*, Tracy Bury & Judy Mead. Page 10. Copyright (1999), with permission from Elsevier.

provides the answer to this question when one considers its individual elements.² In order to conduct an *examination* and *evaluation*, physical therapists must choose, apply, and interpret findings from a wide variety of tests and measures, such as ligament stress techniques and quantifications of strength and range of motion. Similarly, accurate *diagnosis* of conditions resulting in pain depends upon a properly constructed and tested classification scheme. Evidence may assist the physical therapist in selecting the best techniques to correctly identify, quantify, and classify the patient/client's problem, a result that will enhance the efficiency and effectiveness of service delivery.

Prognosis refers to a prediction of the future status of the patient/client that may reflect the natural course of a condition or result following physical therapy treatments or prevention activities. Predictive ability depends upon the physical therapist's understanding of the phenomenon in question (i.e., accurate diagnosis), as well as the identification of indicators or risk factors that signal a particular direction. In all cases the therapist must determine which of the numerous characteristics about the patient/client's physical, psychological, behavioral, and environmental situation will be most predictive of the outcome of interest. Evidence may identify the most salient factors that will produce the most accurate prediction.

The choice of *interventions* is the step in the patient care process that carries particular weight because of the dual responsibilities of the provider to "do good" (beneficence) and to "do no harm" (non-maleficence). The stakes in this balancing act increase when the intervention in question has with it a risk of serious consequences, such as permanent disability or mortality. Most physical therapy treatment options are not "high risk" in this sense; however, the application of low risk interventions that produce no positive effect does not meet the test of beneficence. A common clinical scenario is one in which a patient presents with a painful condition and the therapist must decide which physical agents, exercise, or some combination of both, will be most effective for this individual. Evidence may assist the therapist and the patient/client in a risk-benefit analysis by providing information about effectiveness and harm.

The end product of the patient/client management process is referred to as the *outcome*. Outcomes should be distinguished from treatment effects.³⁰ The former focus on results from the patient/client's point of view that occurred at the conclusion of the episode of care. For example, return-to-work represents a commonly-used outcome following outpatient orthopedic physical therapy management. On the other hand, treatment effects represent the change, if any, in the underlying problems that prevented the individual from working. Outcomes usually are stated in functional terms such as "The patient will work six hours without pain." Such statements re-

flect the patient/client's goals for the physical therapy episode of care. Use of standardized outcome measures, however, permits an analysis of progress over the course of an episode for a single individual, as well as a comparison across patients/clients with similar issues. As with the selection of tests and measures, a physical therapist must decide which standardized outcome instrument will provide the most discriminating information with respect to changes in impairment, function, or health-related quality of life. A review of available evidence may assist the therapist in determining what outcomes are possible and which measurement tool is able to detect change in a consistent and meaningful fashion.

The Process of Evidence-Based Physical Therapy Practice

Evidence-based physical therapy practice as a process starts with a question in response to a patient/client's problem or concern. A search for relevant evidence to answer the question is then followed by a critical appraisal of its merits and conclusions, as well as a determination of its applicability to the patient/client. At the conclusion of the appraisal, the therapist will consider the evidence in the context of his or her clinical expertise and the patient/client's values and preferences during an explicit discussion with that patient/client.⁵ Finally, the therapist and the patient/client will collaborate to identify and implement the next steps in the management process.

The process of EBPT depends upon a variety of factors. First, physical therapists require sufficient knowledge about their patient/client's condition in order to recognize what is unknown. In other words, physical therapists must be willing to suspend the assumption that they have complete information about a patient/client's situation. In addition, physical therapists must have, or have access to, knowledge of the evidence appraisal process—that is, which features characterize stronger versus weaker evidence. Second, therapists need access to the evidence, a situation that has improved considerably with the advent of online databases and electronic publication of journals. Availability of these resources, however, does not ensure their efficient use, particularly when it comes to developing effective search strategies. Third, physical therapists need the time to search for, appraise, and integrate the evidence into their practice. In busy clinical settings, time is a limited commodity that usually is dedicated to administrative tasks, such as documentation of services and discussions with referral sources and payers. Unless the entire clinic or department adopts the EBPT philosophy, it may be difficult for a single physical therapist to incorporate the behavior into his or her patient/client management routine.

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Results from a survey conducted by Jette *et al.* suggest that some of the requirements of EBPT are obstacles to its implementation.¹⁶ Although the majority of respondents (n=488) believed evidence was necessary for practice and improved quality of care, 67 percent of the subjects listed lack of time as one of the top three barriers to implementation of EBPT. Nearly all respondents (96%) indicated they had access to evidence; however, 65 percent reported performing searches for evidence less than twice in a typical month. In addition, notable proportions of the sample indicated lower confidence levels in their abilities to execute effective search strategies (34%), appraise the evidence (44%), and interpret results for terms such as “odds ratio” (47%) and “confidence interval” (37%). Finally, older therapists with more years since licensure were less likely to have the necessary training, familiarity with, and confidence in the skills necessary for effective EBPT.

So, what can be done to reduce the barriers to effective EBPT? Clearly a philosophical shift is required to develop consistent behavior during a busy day of patient/client care. Management support in terms of the technology (e.g., Internet access), as well as time allotted in a therapist’s schedule, would reflect the type of commitment needed. The time issue also may be helped by the use of services that locate, summarize, and appraise the evidence for easy review by practitioners. Some of these services will be discussed at the end of Chapter 3; however, it should be noted that physical therapists must determine whether or not the methodology used by these services is sufficiently stringent to provide an appropriate assessment of evidence quality. Databases dedicated to physical therapy evidence also may enhance the efficiency of the search process.

Ultimately, the ability to engage in EBPT in a consistent fashion requires practice just like any other skill. The process starts with the individual patient/client and the questions generated from the initial encounter, such as:

- Which tests will provide accurate classification of this person’s problem?
- What functional limitations can I anticipate if this problem is not addressed?
- What is the most effective intervention I can offer for documented impairments?
- How will we know if we have been successful?
- What does the patient/client want to get out of this episode of care?

A physical therapist’s willingness to consider *consciously* these questions is the first step of EBPT. The word “consciously” is emphasized because it takes practice to develop the habit of openly challenging one’s assumptions and current state of knowledge. Until this behavior becomes a routine part

of one's practice, EBPT will be difficult to implement in a consistent and time efficient manner.

SUMMARY

The use of evidence in clinical decision making is promoted among many health professions in response to documented practice variation and increasing health care costs, as well as in response to a desire for improved quality of care. Evidence-based practice in any profession promotes less dependence on knowledge derived from authority or tradition through the use of evidence to evaluate previously unquestioned information. Evidence-based physical therapy practice is open, thoughtful decision making about the physical therapy management of a patient/client that integrates the best available evidence, as well as the patient/client's preferences and values, within the larger social context of the patient/client and the therapist. Evidence may be used to assist decision making regarding measurement, diagnosis, prognosis, interventions, and outcomes. Requirements for EBPT include: a willingness to challenge one's assumptions, the ability to develop relevant clinical questions about a patient/client, access to evidence, knowledge regarding evidence appraisal, the time to make it all happen, as well as a willingness to acquire and practice the necessary skills described in this book.

Exercises

1. Describe two factors that have prompted the emphasis on evidence-based practice in health care. How might evidence address these issues or concerns?
2. Discuss the strengths and weaknesses of clinical knowledge derived from:
 - a. Authority
 - b. Evidence
 - c. TraditionDescribe a specific example of each type of knowledge in current physical therapy practice.
3. Discuss the potential contribution of evidence to each step of the patient/client management process.
4. Discuss the role of the patient/client in EBPT.
5. Complete the survey in Figure 1–3 modified from Jette *et al.*¹⁶ What do your answers tell you about your willingness and readiness to participate in EBPT?

Appendix.

Evidence-Based Practice (EBP) Questionnaire

This section of the questionnaire inquires about personal attitudes toward, use of, and perceived benefits and limitations of EBP.

For the following items, place a mark in the appropriate box that indicates your response.

- Application of EBP is necessary in the practice of physical therapy.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - Literature and research findings are useful in my day-to-day practice.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - I need to increase the use of evidence in my daily practice.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - The adoption of EBP places an unreasonable demand on physical therapists.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - I am interested in learning or improving the skills necessary to incorporate EBP into my practice.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - EBP improves the quality of patient care.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - EBP does not take into account the limitations of my clinical practice setting.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - My reimbursement rate will increase if I incorporate EBP into my practice.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - Strong evidence is lacking to support most of the interventions I use with my patients.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - EBP helps me make decisions about patient care.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
 - EBP does not take into account patient preferences.

| | | | |
|--|----------------------------------|--------------------------------|---|
| <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
|--|----------------------------------|--------------------------------|---|
- For the following items, place a mark in the appropriate box that indicates your response for a typical month.
- Read/review research/literature related to my clinical practice.

| | | | |
|-------------------------------------|--|---|---------------------------------------|
| <input type="checkbox"/> ≤1 article | <input type="checkbox"/> 6–10 articles | <input type="checkbox"/> 11–15 articles | <input type="checkbox"/> 16+ articles |
|-------------------------------------|--|---|---------------------------------------|
 - Use professional literature and research findings in the process of clinical decision making.

| | | | | |
|----------------------------------|------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|
| <input type="checkbox"/> ≤1 time | <input type="checkbox"/> 2–5 times | <input type="checkbox"/> 6–10 times | <input type="checkbox"/> 11–15 times | <input type="checkbox"/> 16+ times |
|----------------------------------|------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|
 - Use MEDLINE or other databases to search for practice-relevant literature/research.

| | | | | |
|----------------------------------|------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|
| <input type="checkbox"/> ≤1 time | <input type="checkbox"/> 2–5 times | <input type="checkbox"/> 6–10 times | <input type="checkbox"/> 11–15 times | <input type="checkbox"/> 16+ times |
|----------------------------------|------------------------------------|-------------------------------------|--------------------------------------|------------------------------------|

The following section inquires about personal use and understanding of clinical practice guidelines. Practice guidelines provide a description of standard specifications for care of patients with specific diseases and are developed through a formal, consensus-building process that incorporates the best scientific evidence of effectiveness and expert opinion available.

For the following items, place a mark in the appropriate box that indicates your response.

15. Practice guidelines are available for topics related to my practice.
 Yes No Do Not Know
16. I actively seek practice guidelines pertaining to areas of my practice.
 Strongly Disagree Disagree Neutral Agree Strongly Agree
17. I use practice guidelines in my practice.
 Strongly Disagree Disagree Neutral Agree Strongly Agree
18. I am aware that practice guidelines are available online.
 Yes No
19. I am able to access practice guidelines online.
 Yes No
20. I am able to incorporate patient preferences with practice guidelines.
 Strongly Disagree Disagree Neutral Agree Strongly Agree

The following section inquires about availability of resources to access information and personal skills in using those resources.

For the following items, place a mark in the appropriate box that indicates your response. In items referring to your "facility," consider the practice setting in which you do the majority of your clinical care.

21. I have access to current research through professional journals in their paper form.
 Yes No
22. I have the ability to access relevant databases and the Internet at my facility.
 Yes No Do Not Know
23. I have the ability to access relevant databases and the Internet at home or locations other than my facility.
 Yes No Do Not Know
24. My facility supports the use of current research in practice.
 Strongly Disagree Disagree Neutral Agree Strongly Agree

continues

Figure 1–3 Survey of beliefs and attitudes regarding evidence-based physical therapy practice.

Source: Reprinted from Jette DU, Bacon K, Barty C, Carlson M, Ferland A, et al. Evidence-based practice: beliefs, attitudes, knowledge, and behaviors of physical therapists. *Phys Ther.* 2003; 83(9):786–805 with permission of the American Physical Therapy Association. This material is copyrighted, and any further reproduction or distribution is prohibited.

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| | | | | | |
|---|--|-----------------------------------|----------------------------------|--------------------------------|---|
| 25. I learned the foundations for EBP as part of my academic preparation. | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
| 26. I have received formal training in search strategies for finding research relevant to my practice. | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
| 27. I am familiar with the medical search engines (e.g., MEDLINE, CINAHL). | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
| 28. I received formal training in critical appraisal of research literature as part of my academic preparation. | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
| 29. I am confident in my ability to critically review professional literature. | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |
| 30. I am confident in my ability to find relevant research to answer my clinical questions. | <input type="checkbox"/> Strongly Disagree | <input type="checkbox"/> Disagree | <input type="checkbox"/> Neutral | <input type="checkbox"/> Agree | <input type="checkbox"/> Strongly Agree |

For the following item, place a mark in one box in the row for each term.

31. My understanding of the following terms is:

| Term | Understand Completely | Understand Somewhat | Do Not Understand |
|------------------------|--------------------------|--------------------------|--------------------------|
| a) Relative risk | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Absolute risk | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Systematic review | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Odds ratio | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Meta-analysis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Confidence interval | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Heterogeneity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h) Publication bias | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

For the following items, rank your top 3 choices by placing numbers in the appropriate boxes (1 = most important).

32. Rank your 3 greatest barriers to the use of EBP in your clinical practice.

| | |
|---|--|
| <input type="checkbox"/> Insufficient time | <input type="checkbox"/> Lack of information resources |
| <input type="checkbox"/> Lack of research skills | <input type="checkbox"/> Poor ability to critically appraise the literature |
| <input type="checkbox"/> Lack of generalizability of the literature findings to my patient population | <input type="checkbox"/> Inability to apply research findings to individual patients with unique characteristics |
| <input type="checkbox"/> Lack of understanding of statistical analysis | <input type="checkbox"/> Lack of collective support among my colleagues in my facility |
| <input type="checkbox"/> Lack of collective support among my colleagues in my facility | <input type="checkbox"/> Lack of interest |

Figure 1-3 Survey of beliefs and attitudes regarding evidence-based physical therapy practice. (continued).

6. Based upon your results from the previous question, identify two changes that you would need to make to enhance your ability to participate in EBPT. For each change, identify one strategy that you could implement to move you in the right direction.

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