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Chapter 9

Toward Evidence-Based Therapeutic Recreation Practice

Youngkhill Lee, Ph.D., CTRS
Bryan P. McCormick, Ph.D., CTRS

The phrase *evidence-based practice* is a relatively new term within health and human services. Healthcare reform and the growing focus on cost-effective delivery of services have created an environment in which service providers are increasingly being held accountable for service effectiveness and quality (Stumbo, 1996). This higher standard of accountability is being applied to the development, implementation and evaluation of services. In addition to environmental pressures, interest in evidence-based practice has also been stimulated by increased access to information. The advancement in information technology, such as the World Wide Web, has improved access to research evidence. As access to information about health and human services has increased, barriers to using research findings in practice have diminished.

McCormick and Lee have discussed some of the basic conceptual issues related to evidence-based practice elsewhere (2001). In this chapter, they revisit basic concepts and offer some possible directions that therapeutic recreation practitioners can take given the profession's limited research evidence. The discussion is based on other professionals' views and experience as well as their own thoughts that might bring applications to therapeutic recreation. This chapter begins by visiting the basic concept of evidence-based practice followed by a discussion of some common myths related to evidence-based practice. Then, it presents a conceptual model that integrates research into the therapeutic recreation process. Next, it offers operational steps that help implement evidence-based practice in practical terms for therapeutic recreation. This chapter concludes with suggestions for the successful implementation of evidence-based practice.

What Is Evidence-Based Practice?

The purpose of evidence-based practice is to ensure that health and human service consumers have a greater assurance that they receive services based on the best available information (Brown, 1999). It is motivated not only by the minimization of clinical risk but also by maximizing the quality of care. Accountability is an ethical imperative in the current healthcare environment. Bloom, Fischer and Orme discussed accountability in terms of "the need to evaluate our practice and to provide evidence of the effectiveness of our work" (1995, p. 1). The evidence-based practice approach embraces the need for accountability. When differences in opinions emerge among clinicians with regard to managing client care, research evidence can provide objective guidelines as well as support for choosing one approach over another. In such situations, research evidence is "a respected rationale for care," and is "persuasive when logic, experience, and personal insight are not honored" (Brown, 1999, p. 7). Bury provided the following definition of evidence-based practice:

> Evidence-based practice is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients, integrating individual clinical expertise with the best available external clinical evidence from systematic research. (1999, p. 12)

In evidence-based practice, an implicit motive is to ensure quality services based on the best available research evidence. As evidence-based practice has increasingly become an important approach in the current healthcare environment, many clinicians are still unsure about what exactly evidence-based practice implies (cf., Dubouloz, Egan, Vallerand & Zweck, 1999). The following section offers an additional explanation of evidence-based practice.

Conceptualization of Evidence-Based Practice

Terms such as *research-based practice*, *empirical practice*, *research utilization*, and *evidence-based healthcare* have been used to imply using research-generated knowledge to guide clinical practice (Brown, 1999; Perkins, Simnett & Wright, 1999; Reid, 1994). Other similar terms, including *review of literature*, *integrative review of research*, *evidence synthesis*, *systematic review*, *knowledge synthesis*, and *meta-analysis*, have also been used to

clinical practice, these terms imply the use of research findings as a source of knowledge in the creation and implementation of interventions. Thus, evidence-based practice depends largely on the research that generates evidence demanded by the new healthcare environment.

In a sense, evidence-based practice is an attitude similar to research-mindedness. Instead, practitioners ask the following questions: (a) How do we know that what we do works? and (b) How can our practice be further enhanced? Asking these questions in practice can be applied to a number of different kinds of evidence from experience to statistics. It offers "a defense against practices that have become institutionalized on the basis of little or no evidence" (Perkins, Simnett & Wright, 1999, p. 4). Evidence-based practice implies that scientific evidence comes ahead of each clinician's experience and intuition in assessing clients, selecting interventions and delivering services, not vice versa (Bury, 1999). Evidence-based practice is the "conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996, p. 1). However, it does not negate integrating individual clinical expertise, but instead uses it in conjunction with the best available external clinical evidence obtained from systematic review.

Evidence-based practice is a reflective process. Developing the ability to think on your feet, or reflect-in-action, is one of the roots of evidence-based practice. As reflective practitioners, therapists need to gather, assess, and use evidence as part of the way that they approach interventions (Perkins, Simnett & Wright, 1999). As well as thinking on your feet, to be reflective practitioners, therapists also need to think about their work afterwards—to reflect-on-action. This allows therapists to think about why they acted and felt the way they did, what was happening to others, what they didn't notice at the time that might have been helpful, and what they have learned which might help them to decide what to do in future. When therapists do this, they are drawing conclusions from what they have observed about both their own reactions and those of others. This is called *assessment of evidence*. In short, evidence-based practice is more than a technique—it's an attitude that characterizes reflective practice.

Reid (1994) identifies three facets of evidence-based practice:

a. The use of research methods in practice to facilitate assessment, to guide intervention planning, and to evaluate the results;
b. The application of interventions with demonstrated effectiveness; and
c. Knowledge building through disseminated studies carried out by

Based on these elements, evidence-based practice can be (re)defined as *practice that is being continuously informed and guided by the systematic collection and inclusion of research and practice evidence in clinical work.* This definition suggests that many more empirical issues should be addressed and a wide array of systematic data collection and information processing activities can and should be used to inform practitioners and guide them in their practice.

Myths of Evidence-Based Practice

In addition to identifying what evidence-based practice is, it is also useful to identify what it is not. This section presents some common myths associated with evidence-based practice. In spite of its good intention, there are some myths and skepticism related to evidence-based practice.

A myth is a commonly believed but false idea. In generalized use, it is an untrue, popular tale, or half-truth. Sexton, Whiston, Blener and Waltz noted that various myths related to outcome research originated from "tensions inherent in any field of applied research, rather than the incomparability of research and practice" (1997, p. 10). The myths identified here are the result of introducing the concept of evidence-based practice in both graduate and undergraduate courses. Other professionals also share these myths regarding evidence-based practice.

Myth 1: Evidence-based practice ignores practitioners' clinical intuition and experience.

Evidence-based practice does not negate therapists' clinical experience. Instead, it implies that good therapists use both individual clinical expertise and the best available research evidence, and neither alone is enough (cf., Brown, 1999; Perkins, Simnett & Wright, 1999; Sackett et al., 1996). Sackett and colleagues pointed out that without clinical expertise:

> Practice risks becoming tyrannized by evidence, for even excellent external evidence may be inapplicable to, or inappropriate for, an individual patient. (1996, p. 1)

On the other hand, clinical experience itself is vulnerable to distortion and self-interest; it needs to be balanced by systematic research (Perkins, Simnett & Wright, 1999). In short, it is not that therapists' experience and intuition are unimportant sources of information for clinical practice, but that experience should not overrule the evidence presented in research.

Myth 2: Evidence-based practice is a "cookbook" approach.

Evidence-based practice does not take such a top-down approach like a cookbook. A cookbook approach would imply that all a practitioner needed to do was to find an intervention with research support and then apply it, without modification, to all clients with demonstrated need. Instead, evidence-based practice incorporates the best external research evidence by respecting individual clinical expertise and clients' choices and preferences associated with treatment (Bury, 1999). The incorporation of client choices and preferences into practice decisions requires that the practitioner employs research evidence flexibly. External research evidence can inform and guide the intervention, but does not fully replace individual clinical expertise. It is this expertise that "crafts" the intervention with external evidence that applies to client care. Research evidence should guide the intervention, but not to dominate all clinical decisions.

Myth 3: Evidence-based practice has primarily emerged and been implemented as a hidden cost-cutting idea in managed care.

Some clinicians fear that purchasers and managers "hijack" evidence-based practice to cut the costs of healthcare. This would not only be a misuse of evidence-based practice but also suggests a fundamental misunderstanding of its financial consequences. Evidence-based practice allows clinicians to identify and apply the most efficacious interventions to maximize the quality and quantity of life for individual clients. Therefore, an evidence-based practice approach may help to implement cost-effective intervention, although doing so is not the primary reason for its approach.

Myth 4: Without new research evidence, new interventions are impossible.

Research evidence does not necessarily come in a timely manner, and there are situations where therapists may have to move on with imperfect knowledge. Sometimes, it is not practical to wait for research evidence to definitively support an intervention before practitioners must implement it. Therefore, they need to proceed with what is available. In other words, practitioners have to learn how to work with incomplete knowledge while using the maximum amount of existing research findings. If practitioners wait for the evidence before they try anything new, there won't be any progress in practice (Perkins, Simnett & Wright, 1999). Although evidence-based practice is strongly influenced by research evidence, it is not completely dependent upon it for innovation.

Myth 5: Research evidence from nonexperimental designs should not be considered viable evidence.

It is true that well-controlled experimental studies (i.e., random control trials) are the best evidence. However, evidence-based practice is not restricted to randomized trials and meta-analyses. Practitioners can utilize the best external evidence with which to answer their clinical questions. Of course, most textbooks in research methods claim that nonexperimental designs have minimum explanatory power of cause-and-effect relationships. Thus, the most recommended approach is the randomized trial, which is the so-called "gold standard." The randomized trial is more likely to guide than to mislead when determining whether a treatment does more good than harm. However, some questions about therapy do not require randomized trials or cannot wait for the randomized control trials to be conducted. If research findings with randomized control trials are not available, the next best external evidence should guide practice.

Myth 6: Establishing and maintaining evidence-based practice demands too much time commitment.

This statement may be correct in a sense that recreation therapists have numerous pragmatic challenges in keeping abreast of all the research studies reported in journals. It takes time to keep up with evolving research findings and attend continuing education workshops and professional conferences. However, providing high-quality intervention does require a commitment by the practitioner to take the time and do what is needed to stay up-to-date (Persons, 1999). Practitioners who set aside time for locating and appraising research relevant to their practice will find that their day-to-day professional life is more interesting and satisfying (Brown, 1999). Further, integration of new ideas from research into day-to-day practice can be an intellectually and professionally fulfilling experience. Guided by research evidence, therapists provide their research rationale as they carry out a certain course of actions with clients. In short, being informed about current research provides therapists with a rich knowledge base to bring to professional conversations and consultations (Brown, 1999).

How To Do It

What does evidence-based practice mean to therapeutic recreation practice? Embracing evidence-based practice in therapeutic recreation services offers [illegible] for improving the quality of therapeutic recreation practice. In other

words, the use of evidence-based practice would increase the accountability of therapeutic recreation services. Some may argue, however, that while evidence-based care makes sense conceptually, it does not sound very practical due to the lack of research evidence in therapeutic recreation. In fact, the issue related to insufficient volume of research in therapeutic recreation is not a new one; numerous therapeutic recreation authors have raised this concern (e.g., Compton & Dieser, 1997; Lee & Yang, 2000; Witt, 1988). Does this mean that evidence-based practice is not a plausible option for therapeutic recreation practice? Although evidence-based practice is a plausible approach to therapeutic recreation practice, there are some obstacles.

Unfortunately, therapeutic recreation practitioners who wish to employ research findings in their practice have little guidance. One important deterrent to integrating evidence into practice is the lack of a conceptual model that guides evidence-based practice. Sexton and associates argued that:

> Many of the reasons for the research-practice gap are due to a lack of knowledge and awareness rather than because of any justifiable division between these two activities. (1997, p. x)

A clear conceptual model should exist to offer clear guidelines for this approach.

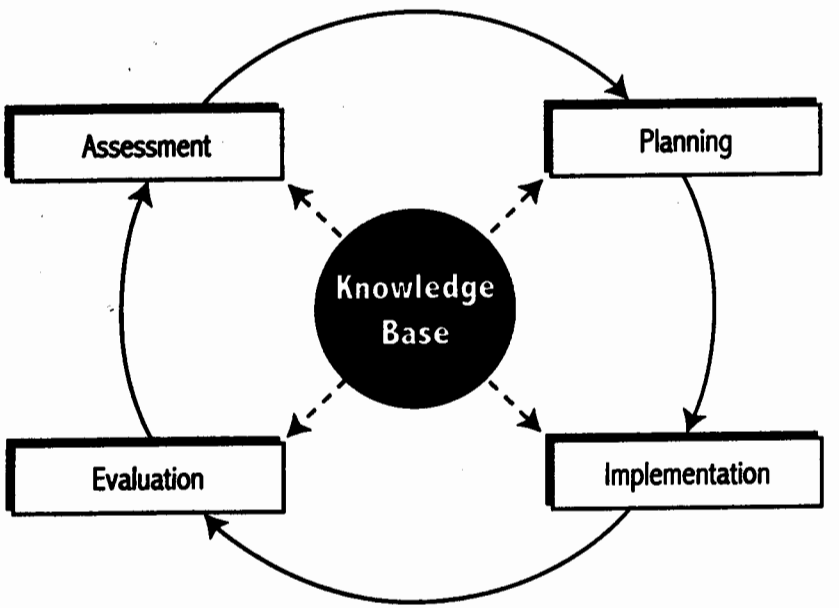
Conceptual Model

This conceptual model begins with the popular assessment, planning, implementation and evaluation (APIE) process model (Austin, 1999; O'Morrow & Reynolds, 1989). The APIE process "provides a systematic method of problem solving through a progression of phases" (Austin, 1999, p. 163). As Figure 9.1 (p. 172) indicates, the knowledge base of therapeutic recreation is the core of evidence-based practice in therapeutic recreation. As indicated earlier, the volume of research regarding therapeutic recreation is quite small as compared to that of physical rehabilitation or psychology, for example. This would appear to limit the ability of therapeutic recreation personnel to acquire research evidence to support practice. However, this model takes the approach that therapeutic recreation is an applied field, which uses research from a variety of areas to provide a foundation for practice. Granted, the strongest evidence to support activities in any of the APIE components would come from a clinical trial of relevant therapeutic recreation interventions. However, in the absence of such research evidence, the therapeutic recreation specialist should draw from related research evidence. The total knowledge base guides the assessment, planning, implementation and evaluation processes. Evidence-based practice addresses

activities in (a) assessment of clients' need and baseline status; (b) the selection and identification of interventions; and (c) the evaluation of client progress and intervention effectiveness (Blythe, Tripodi & Briar, 1994).

Assessment

The use of valid and reliable measurement in the assessment process affords the practitioner the ability to use the assessment information as a basis for not only intervention, but also for the purposes of comparison of baseline to outcomes. Research evidence helps practitioners understand the illness experience of clients; what to ask; and what to look for. Research findings can enrich practitioners' understanding of how illness affects the lives of clients and their families. They can further direct attention to the psychosocial factors that influence health and illness behaviors and responses; and they can offer "descriptions of interpersonal approaches and actions that make the caregiving relationship more comfortable for patients" (Brown, 1999, p. 4). Research evidence also helps in selecting and using clinical assessment tools. Without proper validity and reliability information for assessment tools, a therapist is cautioned that the use of tools with unknown characteristics may produce erroneous results.



Planning

Research evidence can direct the purpose and content of the intervention in terms of resultant outcomes. Research data provides an objective rationale for choosing one approach over another. Research evidence helps particularly when differences of opinion exist with regard to managing problems and making a clinical decision regarding an intervention. Research findings provide a rationale for the interventions, therapies, and strategies used by therapists. A useful starting point for identifying empirical evidence to support the planning phase is to examine reviews of research (e.g., Coyle, Kinney, Riley & Shank, 1991; Lee & Yang, 2000; McCormick & Funderburk, 2000). In addition to research evidence, Bury (1999) also suggested that both clinical expertise and client preference be included as evidence in planning. For example, what is the institutional history of success in providing a particular intervention? Is the client likely to consent to a particular intervention? What is the potential impact of the treatment on such things as health status or client satisfaction? Although these sources of evidence are not considered to be as strong as research evidence, research evidence should never entirely replace clinical judgment.

Implementation

The implementation stage of the model is the step in which the plan is put into action (Austin, 1999). In this stage, evidence guides how a plan is carried out. For example, a number of studies have found that certain types of feedback are more effective in impacting efficacy beliefs than others (Bandura, 1997; Ellis, Maughan-Pritchett & Ruddell, 1993). This evidence should be considered during the implementation of a plan of intervention aimed to improve a client's self-efficacy. Thus, evidence guides the identification of the content and process of carrying out the plan.

Evaluation

How does the knowledge base guide the evaluation of practice? One of the most important ingredients of evidence-based practice is the use of measurable data in the examination of the results of services. Evaluation in this evidence-based practice model enhances accountability through demonstration of the effectiveness of the services provided. Practitioners can demonstrate effectiveness by *systematically* tracking whether the service provided achieved its intended results. Evidence-based practice uses quantifiable data to make such determinations through the measurement between the baseline and end-point client data. In addition, the degree of attainment of treatment goals also may be used as a measurable basis for determining

effectiveness (Kiresuk, Smith & Cardillo, 1994). Thus, in this phase of the model, evidence is used to guide best practices in evaluating the effectiveness of care.

The Strength of Research Evidence

Not all evidence is equally useful. There are a number of sources of evidence, and practitioners should carefully discern various types of evidence sources representing strong to weak evidence. Research evidence is derived from high-quality, systematic research. Clinical expertise is a clinician's experience with patients, established practice, experts in the field, and development of skills through continuing professional development. Related to this type of evidence are therapist's personal beliefs and values regarding their intervention based on previous experience. In addition, clients' beliefs and values also provide an important source of evidence. The inclusion of such evidence increases the client's sense of participation and control which is important to successful intervention (cf., Dattilo & Kleiber, Chapter 4).

Bury and Mead (1999) provided useful guidance in terms of the hierarchy of strength of evidence. When reviewing research evidence, the idea is to rank studies on the degree to which the observed results are likely to be attributable to the intervention being studied. It should be remembered that the hierarchy is based on high-quality studies being carried out in each category. As Table 9.1 indicates, the strongest types of evidence include research studies with well-designed randomized control trials. Designs using randomized control trials are considered the strongest form of evidence because they employ an experimental design. The research method of experimental design is the best approach to identify cause-and-effect relationships. However, Bury and Mead pointed out that one systematic review of multiple studies with this design contains stronger evidence than a single randomized control trial. It is this systematic review that differentiates the first and the second strongest evidence.

Why should systematic reviews be at the top of the list? First of all, it is important to draw a distinction between systematic reviews and other types of reviews. While many reviews summarize the results from a number of studies and draw conclusions, they have often been produced without a thorough search for all the available studies. Also, individual studies may not have been quality assessed. A systematic review, however, uses explicit methods to identify, select and critically appraise relevant research, and to collect and analyze the data from individual studies (Brown, 1999). This

Table 9.1 Hierarchy of Strength of Research Evidence (Bury & Mead, 1999)

Level	Type
I	Strong evidence from at least one systematic review of multiple, well-designed randomized control trials
II	Strong evidence from at least one properly designed randomized control trial of appropriate size
III	Evidence from well-designed trials without randomization, single group pre–post tests, time series, or matched-case control studies.
VI	Evidence from well-designed, nonexperimental studies
V	Opinions of respected authorities and descriptive studies or reports of expert committees

The difference between the second and third best evidence is the employment of *randomization* in research design. Randomization indicates that study participants were assigned to treatment and control groups at random, thus increasing the likelihood that the two groups are similar at the outset of the study. In addition, studies with experimental designs (Levels I–II) contain stronger evidence than those studies with nonexperimental designs (Levels III–IV). Finally, published accounts of authorities and descriptive studies provide the weakest research evidence.

Steps to Evidence-Based Practice

Rosenberg and Donald (1995) identified the following steps (Figure 9.2, p. 176) to implement evidence-based practice. These simplified steps are similar to Brown's (1999) pathway to evidence-based practice. Basically, the steps cover all necessary components for successful evidence-based practice.

Step 1: Formulate a clear clinical question from a patient's problem.

A recreation therapist can develop clinical questions when they involve any aspect of the clinical practice including causes of a problem, assessment, prognosis, treatment methods, and evaluation. If a recreation therapist is dealing with treatment methods, for example, guiding questions may be: Is intervention *x* effective? If so, what aspects of intervention *x* are helpful (e.g., the modality, structure of session, facilitation process, length and

frequency of the chosen intervention, physical and social contexts)? How can the effects of this intervention be enhanced? Further guiding questions might include: What might work with this type of client? What combination of clinical process will be most effective with this type of client?

Step 2: Search evidence for relevant clinical articles.

Journals provide important sources for evidence that are directly useful in clinical practice. Table 9.2 (pp. 179–180) provides a list of databases that recreation therapists will find useful to conduct literature searches to answer a particular question. Making clinical decisions using the research findings with similar client types is the most recommended approach. However, a recreation therapist should not eliminate or ignore research studies with different client populations. In spite of the fact that types of disability are different, practitioners can start consulting the research findings on specific problems. For example, if there are a number of strong research studies dealing with depression and stroke, practitioners

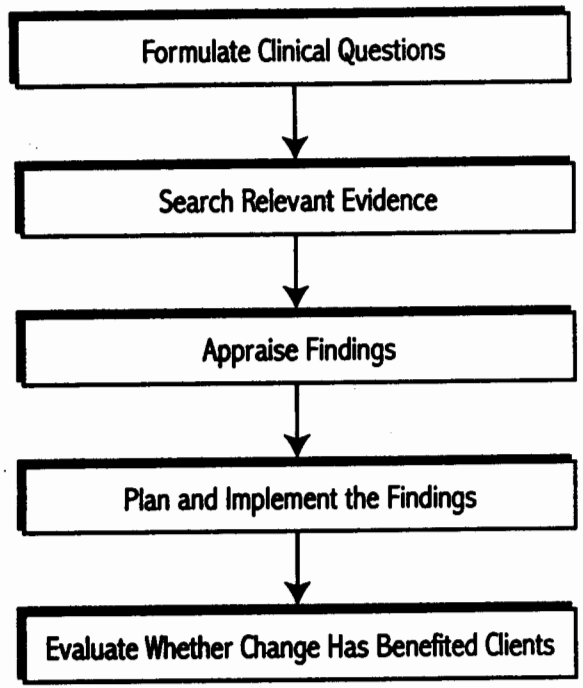


Figure 9.2 Operational Model for Evidence-Based Practice

may be able to apply the findings of this research to the similar types of physical disabilities (e.g., spinal cord injury, traumatic brain injury).

Step 3: Appraise the evidence.

The core of this step is to carefully discern good evidence from poor evidence. Readers might want to revisit the section entitled The Strength of Research Evidence and Table 9.1 (p. 175) which provide fundamental concepts for examining the hierarchy of evidence (i.e., from strong to weak evidence). While Levels I–II are the best types of evidence, a recreation therapist should not ignore findings from Levels III–V but instead interpret the findings cautiously. While most peer-reviewed research papers may utilize reliable and valid instruments to measure outcomes, a recreation therapist should make sure that the researchers report evidence related to reliability and validity of their measures.

Step 4: Implement useful findings in practice.

This step of the pathway involves actual implementation of the appraised studies. In this phase, a recreation therapist might want to consider if the treatment is consistent with clients' values, expectations, and preferences. The most efficacious treatment for Client A does not automatically mean that it is good for Client B. Therefore, a recreation therapist should not generalize findings to all clients. Related this issue is clinical judgment between study population and individual client. What similar characteristics exist between the study population and the clients? A recreation therapist should carefully apply the findings when significant differences exist between the subjects of a research study and the clientele he or she is working with.

Step 5: Evaluate the impact of change in practice.

A recreation therapist continuously monitors his or her own performance as well as evaluates the treatment applied. A guiding question may be asked: Is this intervention working for my client? Modification of treatment should occur when systematic evaluation indicates that no effect or a negative effect results for clients. The evaluation of the impact of the intervention can occur on both an individual and group basis. A recreation therapist might want to know what aspects of treatment (e.g., modality, structure of treatment, facilitation process, length and frequency of the treatment) were particularly helpful. Through evaluation, a recreation therapist becomes confident when he or she finds effectiveness and efficacy of treatment drawn from research evidence.

Conclusion and Recommendations

This chapter presented the basic concept of evidence-based practice and intended to help readers become aware of some common myths related to evidence-based practice. The conceptual model presented in this chapter also provides some possible directions that a recreation therapist can take. Further, the operational model (Figure 9.2, p. 176) might facilitate implementing evidence-based practice. In fact, there are various web-based databases (see Table 9.2) that can help recreation therapists access research evidence within healthcare and social sciences disciplines. Using these databases, recreation therapists are encouraged to apply the operational model introduced in this chapter to implement evidence-based practice.

Fortunately, the body of therapeutic recreation research continues to grow, and therapeutic recreation practitioners should be active and wise consumers of research studies by using this important form of evidence as a basis for practice. In order to successfully integrate research into practice, there are some suggestions that therapeutic recreation professional might want to consider.

First, successful implementation of evidence-based practice demands a collaborative relationship between practitioners and researchers. For the successful integration of research and practice to proceed, both practitioners and researchers need to understand the interdependent relationship between research and practice. In such a relationship, the experience of practitioners generates questions as researchers investigate those questions in a systematic manner. According to Sexton and colleagues (1997), practitioners need to be involved in both generating questions and using findings appropriately. In turn, researchers must focus on useful questions for clinical practice. The challenge is not to turn clinicians into researchers, but to help them recognize the need for partnership. An effective service to clients cannot be maximized unless practitioners and researchers forge a closer relationship.

Second, the content of continuing education in therapeutic recreation should reflect evidence-based practice. Continuing education is one important means to bridge the gap between research and practice. Grasso, Epstein, and Tripodi (1988) suggested that practice-oriented research training is effective in enhancing pro-research attitudes and facilitates the use of available information by practitioners. The new evolution of evidence-based practice demands that some continuing education programs in therapeutic recreation should address skills associated with gathering and interpreting research. As Alsop (1997) pointed out, failure to keep up with current research may lead to decay in professional knowledge and expertise, and

Table 9.2 Selected Online Research Databases

DATABASE Description Time frame; Entries	Web Site
CANCERLIT Comprhensive, international cancer-related research records from journal articles, governing reports, technical reports, meeting abstracts and papers, monographs, letters, and theses. Produced by the U.S. National Cancer Institute in cooperation with the National Library of Medicine. 1976–present; 4,000+ journals, 1.5 million records	**http://www.cancer.gov/cancer_information**
THE COCHRANE LIBRARY Regularly updated electronic library designed to make available the evidence needed to make informed healthcare decisions. Presents the growing body of work of the Cochrane Collaboration and others interested in evidence-based medicine. Maintains four databases: (a) the Cochrane Database of Systematic Review; (b) the Database of Abstracts of Reviews of Effectiveness; (c) the Cochrane Controlled Trials Register; and (d) the Cochrane Review Methodology Database.	**http://www.cochrane.org/**
CINAHL (Cumulative Index to Nursing and Allied Health Literature) Literature related to nursing and the allied health disciplines; covers cardiopulmonary technology, physical therapy, emergency services, physician assistants, health education, radiological technology, medical laboratory, technology therapy, medical assistants, social service, healthcare, medical records, surgical technology, and occupational therapy; also includes alternative/complementary therapies, consumer health, biomedicine, and health science. Besides journals, selectively indexes audiovisual materials, educational software, conference proceedings, healthcare books, dissertations, and standards of practice. 1982–present; 350,000 records	**http://www.cinahl.com/**
EMBASE Covers nursing, dentistry, veterinary medicine, normal psychology, and alternative medicine; consider this database after searching MEDLINE and CINAHL. 1966–present; 4,000+ journals, 900,000 records	**http://www.elsevier.com/** or **http://www.embase.com**
MEDLINE One of the most widely recognized medical sources; covers biomedical literature in allied health, information science, biological sciences, physical sciences, communication disorders, popuation biology, humanities, and reproductive biology. 1966–present; 4,500+ journals, 11 million records	**http://www.ncbi.nlm.nih.gov/PubMed/**
National Library of Medicine (NLM) Gateway Allows users to search in multiple retrival systems at the U.S. National Library of Medicine (NLM). The current Gateway searches MEDLINE/PubMed, OLDMEDLINE, LOCATORplus, MEDLINEplus, DIRLINE, AIDS meetings, Health Services Research meetings, Space Life Sciences meetings, and HSRProj.	**http://gateway.nlm.nih.gov**

Table 9.2 Selected Online Research Databases (continued)

DATABASE Description Time frame; Entries	Web Site
PsycINFO Indexes psychological research from journal articles, dissertations, reports, book chapters, books and other documents. Known for high-quality, worldwide information. Selectively indexes materials from the disciplines of business, medicine, nursing, law, and social work. 1967–present; 2 million records	http://www.apa.org/psycinfo/
SciSearch Multidisciplinary database containing various research in general sciences; spans over 158 disciplines. Offers cited reference searching and traditional search by author and keyword. 1974–present; 5,300+ journals, 10 million records	http://www.isinet.com/isi/
Social SciSearch Multidisciplinary database containing journal literature in social sciences research; spans 50 disciplines. Also includes selected items from over 3,300 of the world's leading scientific and technical journals. Offers cited reference searching and traditional search by author and keyword. 1972–present; 2,400+ journals, 2.5 million records	http://www.isinet.com/isi/

consequently to outmoded or ineffective practice. Continuing professional development encompasses both formal and informal learning.

Third, therapeutic recreation curriculum needs to be modified to accommodate evidence-based practice. Numerous articles exist about how to bridge the gap between research and practice, and many writers provide suggestions from a curricular point of view (Glisson, 1982; Reinherz, Grob & Berkman, 1983; Siegel 1984). They propose modifying the teaching of research and core professional courses. One concern has to do with the way research is presented in most therapeutic recreation curricula. As has been argued elsewhere (McCormick & Funderburk, 2000; McCormick & Lee, 2001), the conceptual separation of "research issues" from "practice issues" in most therapeutic recreation texts presents research as an add-on to practice. Research and evaluation should be just as much a part of therapeutic recreation practice as assessment or treatment planning, for example. Unless the profession strengthens research and evaluation competencies, and integrates evidence-based practice in core therapeutic recreation courses, overcoming the long-standing gap between therapeutic recreation practice and research is unlikely. Therapeutic recreation curricula should help students

Reading Comprehension Questions

1. How would you define evidence-based practice?
2. Give examples of sources of evidence that can be used as a basis for practice. What are the advantages of each source? What are the disadvantages?
3. What is a randomized control trial? Why is it one of the strongest forms of evidence?
4. Identify a clinical question. Search for evidence related to your question. What kinds of evidence can you find? How strong is it? How clear is it?

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