

# Will the Real Evidence-Based Practice Please Stand Up? Teaching the Process of Evidence-Based Practice to the Helping Professions

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“Evidence-based practice” (EBP) is in danger of becoming a catchphrase for anything that is done with clients that can somehow be linked to an empirical study, regardless of the study’s quality, competing evidence, or consideration of clients’ needs. The EBP *process*, on the other hand, involves a well-built practice question, an efficient search for best evidence, a critical appraisal of that evidence, and action based on the interchange between client preferences, practice experience, and the best evidence. This article defines elements in the EBP process through examples taken from our own multidisciplinary work with students in two separate graduate and undergraduate programs. We also discuss practical concerns that have arisen while teaching EBP and explore a number of trends in discipline-specific databases. [*Brief Treatment and Crisis Intervention* 4:137–153 (2004)]

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Suppose a practitioner at an agency serving children and families encounters a 15-year-old, female client who discloses that she is suicidal. What methods of assessment and treatment are most effective for working with this youth? Where does this knowledge come from?—

experience? training? Is clinical expertise enough to guide casework decisions? If knowledge is gained from research, is the information up-to-date? Is it of sufficient rigor? Is it inclusive of all knowledge or is it selective?

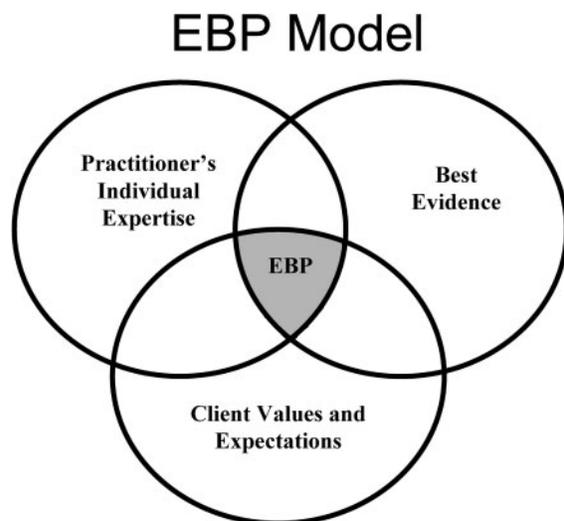
Evidence-based practice (EBP) is a systematic *process* that blends current best evidence, client preferences (wherever possible), and clinical expertise, resulting in services that are both individualized and empirically sound. Applicable to all forms of practice, EBP is particularly relevant to crisis intervention, where, given the gravity of problems faced by clients and the short amount of time in which to act, approaches taken must be both effective and efficient. This *process* is distinguished from other

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**FIGURE 1**  
EBP Model.

types of practice, whereby “best practices,” “evidence-based practices,” or “practice guidelines” are identified and promoted for use with clients. There is a concern that such practice guidelines and standards are top-down (that is, subject to being authority based), may become quickly obsolete, and may or may not be sufficiently transparent in how they were developed. While guidelines and standards may have some merit if truly effective services are identified, the *process* of EBP is bottom-up and begins and ends with the client, moving well beyond a one-size-fits-all model and encompassing clients’ unique experience with their presenting problems. In addition, since information is continually updated, EBP practitioners avoid obsolescence.

### The Development of Evidence-Based Practice

In this paper, EBP will be defined by concept, operation, and example. The term *evidence-based*, as applied to the helping professions, appears to have been coined by a Canadian

medical group at McMaster University in Hamilton, Ontario (Evidence-Based Medicine Working Group, 1992). They contend that “[evidence-based medicine] is the integration of best research evidence with clinical expertise and patient values” (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000, p. 1). This integration is perhaps best illustrated with the Venn diagram in Figure 1.

In the figure, it is the intersection of current best external evidence, client values and expectations, and practitioner expertise that defines EBP. Contrary to some criticisms of the EBP model, action is not dictated by current best evidence operating in a vacuum. None of the three core elements can stand alone; they work in concert by using practitioner skills to develop a client-sensitive case plan that utilizes interventions with a history of effectiveness. In the absence of relevant evidence, the other two elements are weighted more heavily, whereas in the presence of overwhelming evidence the best-evidence component might be weighted more heavily.

### Conceptual Definitions of Evidence-Based Practice

In the human services context, EBP has been defined by Gibbs (2003): “Placing the client’s benefits first, evidence-based practitioners adopt a process of lifelong learning that involves continually posing specific questions of direct practical importance to clients, searching objectively and efficiently for the current best evidence relative to each question, and taking appropriate action guided by evidence” (p. 6). As with any important advance, controversy and misunderstandings will inevitably arise among competent professionals of goodwill (e.g., the role of *Helicobacter pylori* bacteria in stomach ulcers [Blaser, 1996]). The advent of EBP is no exception. Seven years ago, Sackett,

Rosenberg, Gray, Haynes, and Richardson (1996) refuted the argument that “everyone is already doing [evidence-based medicine]” by citing striking variations among clinicians regarding how they integrated client preferences into their practice and kept abreast of advances in the medical literature. Sackett and colleagues also made the point that evidence-based medicine is not a set of external guidelines to be followed slavishly, a sort of “cookbook” approach, but rather a flexible, bottom-up approach that integrates client preferences, practice experience, and the current best evidence (see Figure 1). Eileen Gambrill (2003), referring to EBP in social work, makes essentially the same points.

Since its inception, EBP has been misrepresented and misunderstood in medicine and social work, but nevertheless, its innovation will come. Advances in information technology and access to that technology make this inevitable for the following reasons:

*Widespread Access to Practice Information.* According to survey data, 97% of members of the National Association of Social Workers have access (at either work or home) to the Internet (O’Neill, 2003). Anyone who has access to the Internet can access many useful bibliographic databases for free (e.g., PubMed, ERIC [Education Resources and Information Center], Cochrane Library abstracts [but not full reviews], Campbell Collaboration, the National Criminal Justice Reference Service [NCJRS]). Agencies that have the funds can subscribe to many of the most useful databases through single-source vendors such as Ovid (<http://www.ovid.com/site/index.jsp>).

*Increasing Speed of Access to Practice Information.* The National Science Foundation’s TeraGrid project has sent information between Los Angeles and Chicago at the rate of 40 gigabits (billion bits) per second, which is about a million times the speed of a dial-up network and four times faster than existing research

networks (Science Blog, 2003). The speed of access to practice information will undoubtedly increase over time.

*Questions Addressed in Continually Updated Systematic Reviews.* Emerging methods for synthesizing studies make it easier to stay current with the best evidence regarding vital practice questions. These procedures employ rigorous methods for locating published and unpublished studies and synthesizing them with respect to their methodological rigor, findings, and implications for practice. The leading sources in this area are the Cochrane Library (<http://www.update-software.com/abstracts/mainindex.htm>) and Campbell Collaboration (<http://www.campbellcollaboration.org>).

*Improvements in Practical EBP Techniques.* Improved techniques for posing relevant and answerable questions, searching efficiently and effectively, and critically appraising and applying what is found will go a long way toward making EBP the gold standard for treating clients. Resources for learning these skills can be found in books (Gibbs, 2003; Sackett et al., 2000), as well as on the Web at the Evidence-Based Medicine Resource Center (<http://www.ebmny.org/teach.html>).

### **An Operational, Step-by-Step Definition of Evidence-Based Practice**

EBP is a process that all practitioners can follow, right in the office, if they have access to electronic databases. Sackett et al. (2000, pp. 3–4) propose the following steps:

1. Converting the need for information (about prevention, diagnosis, prognosis, therapy, causation, etc.) into an answerable question
2. Tracking down the best evidence with which to answer the question
3. Critically appraising that evidence for its

validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in clinical practice)

4. Integrating the critical appraisal with clinical expertise and with the patient's unique biology, values, and circumstances
5. Evaluating effectiveness and efficiency in executing Steps 1 through 4 and seeking ways to improve them both for the next time

This method outlines how an individual practitioner can incorporate research into daily decision making. As a bottom-up approach, it empowers the parties to the treatment because decisions can arise out of the active collaboration between individual practitioners and clients.

Ideally, the model extends past practitioners to administrators in human service agencies. Administrators should create a culture of inquiry whereby practitioners are given the time and resources to search for relevant information. Yet this is a process not only for keeping up with the literature, but of cultural change within the agency. The search for current best evidence will necessarily prompt agencies to find ways in which they can integrate new findings into the service milieu. Errors made with clients must serve to inform clinical expertise in a proactive rather than reactive manner. Client values and preferences must be heeded in more than comforting words; they must be truly integrated into service plans.

### Definition by Example

Before giving an example of EBP from practice, some background may be helpful regarding specific techniques. The process begins with a well-built question, one that might be called

a client-oriented, practical evidence search (COPES) (Gibbs, 2003). Such a question directly concerns the interests of the client. The example below from corrections is *client-oriented* because it concerns risk and the need to consider risk carefully to both protect the community and not restrict the client's freedom more than absolutely necessary. It is *practical* in that it refers to the idea that knowing the answer to the question could result in action. Questions are not posed if answering them would not result in constructive action (i.e., considerations of unethical treatment such as castration, intense punishment, deception, and methods and measures too costly to apply). And, finally, the question needs to be posed specifically enough to guide an *evidence search*. While the term "COPES" seems more appropriate for social workers, these ideas have been called *patient-oriented evidence that matters* (POEM) in medicine (Slawson & Shaughnessy, 1997). As described by Sackett, Richardson, Rosenberg, and Haynes (1997), well-built COPES questions comprise the four elements of evidence search questions: client type, course of action, alternate course of action, and what you intend to accomplish.

In addition to posing specific and vital questions, EBP requires mastering new skills and technology. Searching efficiently in real time, as problems arise in practice, requires having access to electronic databases from the office, knowing how to identify terms that mark the topic, planning a search for maximum efficiency using methodological filters (terms that locate the best evidence regarding specific question types [Gibbs, 2003; McKibbin, Eady, & Marks, 1999]), knowing which professional databases to search for specific topics, and being able to critically appraise evidence for its quality and utility as a guide to action. For a quick electronic introduction to posing questions and searching, see <http://www.evidence.brookscole.com>; and for critical ap-

praisal, see the CASP (Critical Appraisal Skills Programme) Web site at <http://www.phru.nhs.uk/~casp/casp.htm>.

### **Student Example**

Melissa Candell followed the EBP process in her work with high-risk sex offenders on probation and parole. Her example, though competently done, may not represent the best possible solution and is reported (with permission) in order to illustrate a real-practice scenario (M. Candell, personal communication, October 16, 2003). She and her social work field instructor, Bridget Rumphol at the Wisconsin Division of Community Corrections Chippewa Falls Office, worked with adults charged with first-, second-, and third-degree sexual assault, disorderly conduct, and lewd and lascivious behavior. Their work required them to do pre-sentence investigations whereby they recommended either prison sentences or probation for these offenders. Ms. Candell became interested in risk assessment for sex offenders when weighing the rights of citizens in the community versus those of offenders.

Implementing Step 1 in the Sackett et al. (2000) model, she posed this well-built risk/prognosis question: If convicted sex offenders on probation or parole were administered the Rapid Risk Assessment of Sex Offender Recidivism (RRASOR) or the Minnesota Sex Offender Screening Tool-Revised (MnSOST-R), which of these instruments would be the most accurate in predicting whether a sexual offender would reoffend? Her experience illustrates how steps in the EBP process may proceed concurrently, not always progressing in sequential order. She posed her question relative to two sex-offender screening tools partly because they were used in neighboring counties and partly because she conducted an electronic search that revealed them to be commonly referenced.

Implementing Step 2, she kept a log of her electronic search in the ERIC, PsycINFO (the American Psychological Association's database of psychological abstracts), SWAB (Social Work Abstracts), and NCJRS databases to record the number of documents for each database and search terms used in each. From the question, concept terms were derived, such as (sex offender\* OR sexual offender\*) AND (assessment scale\* OR risk scale\* OR assessment\* OR reoffend OR risk) and combined with several risk/prognosis methodological filters, such as: validation sample OR gold standard OR positive predictive value OR negative predictive value OR predictive validity OR risk reduction OR estimating risk OR risk estimation OR prediction study. The latter filters have been termed *methodology-oriented locators for evidence searching* (Gibbs, 2003), or "MOLES," because, regardless of the bibliographic database, these terms will dig for the studies with the most rigorous methodology.

Based on her search results, Ms. Candell implemented Step 3: She obtained and evaluated the results from the comparison of the RRASOR versus the MnSOST-R using a client assessment and risk evaluation (CARE) form (Gibbs, 2003), which includes criteria specific to evaluating risk in practice. Her comparison demonstrated that the RRASOR scored 11 of 19 criteria on the CARE and that the MnSOST-R scored only 3 of the 19 criteria.

Implementing Steps 4 and 5, she administered both measures to six of her clients in order to gain experience with these instruments. She reported on her experiences with the instruments, summarized her search and critical appraisal of the evidence, and demonstrated how to search the NCJRS homepage (<http://www.ncjrs.org>) for various agency staff. Although the agency did not begin administering the RRASOR to its clients, it did consider

her results when referring to local consultants for risk assessment.

### **Lessons Learned in Teaching Evidence-Based Practice**

The process of EBP requires a substantial shift in the way services are negotiated and delivered to clients. Instruction of students in EBP is critical if the model is to be followed correctly, and our experience in teaching this method to students from a wide range of disciplines within the helping professions has informed our process as well. Certainly, there are several key elements that must be stressed and many pitfalls to avoid.

#### ***Misinterpreting the Mission of Evidence-Based Practice***

Students often say they want to find evidence to support a particular position in order to advocate for it (e.g., intervention method, assessment method, problem prevalence). One student stated that she had heard the following argument from a professional: "Evidence-based practice is useless, because you can always find a study to support your conclusion." In response to such arguments, we point out that if one searches only for studies that support a given premise, then all one winds up with is an artfully concealed lie. We tactfully point out that it may not help clients, or might even harm them, to advocate for services built on false premises. We argue that in order to approach the truth—we find no absolutes—those doing EBP need to search as diligently for *disconfirming* evidence as they do for evidence that supports their hunches. Likewise, students and practitioners need to weigh the quality of the evidence and present their formulation to clients in terms that make sense to them, such

as *number needed to treat* (Bandolier, 2004; Cordell, 1999).

### ***Posing Well-Built COPES Questions***

Posing a question that can be answered by a database is no small task and is the foundation upon which EBP is built (Gibbs, 2003, ch. 3). Simply put, a database must be given information in a format and language that it can interpret, and this is often quite different than the normal phrasing of questions in everyday practice. Separating the question into its four distinct elements (client type and problem, what might be done, alternative course of action, outcome desired) sets the stage for identifying key concepts (Sackett et al., 1997). Questions are then categorized into five domains: effectiveness, prevention, risk/prognosis, assessment, and description. These domains inform the selection of methodological filters, or MOLES, to be used in the subsequent search. Real examples of student questions from each of the domains are presented in Table 1. However, it should be noted that none of these questions was initially posed as presented here.

Posing an answerable question often requires many iterations until key concepts are clearly identified and properly separated into their respective categories and domains. Unfortunately, many practitioners seem to struggle with this simple but difficult stage of the process. Our experience has identified some common pitfalls:

- Asking questions that are irrelevant to the client in terms of outcomes sought or resources available (e.g., asking about an intervention that cannot be offered or that the client would refuse).
- Asking questions that are vague in terms of the concept being searched, intervention(s) applied, or outcome(s)

**TABLE 1.** COPES Questions from Students at the University of Wisconsin-Eau Claire School of Social Work and the Columbia University School of Social Work

Name of Student	Type of Question	Client Type and Problem	What You Might Do	Alternate Course of Action	What You Want to Accomplish
Laila Salma*	Effectiveness	If African American juvenile delinquent males ages 11–15 who have committed one criminal act	become involved in an after-school tutoring and mentoring program	compared with those who do not	will they be less likely to commit a second criminal act?
Zayani Lavergne-Friedman*	Prevention	Will high-risk, very young children in urban areas	who participate in an Early Head Start program	compared with those who do not	have better literacy skills and better behavior in kindergarten?
CariLyn Imbery**	Risk/prognosis	For parents or guardians of children who have been found to have abused their child	which risk-assessment scale		would most accurately and inexpensively identify those who would reabuse their child?
Melissa Johnson**	Assessment	For elderly residents of a nursing and rehabilitation home who show signs of depression but may also have a dementia-related illness	is there a depression measure		that briefly and accurately differentiates between depression and dementia?
Tami Wilson**	Description	If patients in a hospital who are scheduled for surgery	are given discharge planning options prior to surgery	as opposed to after surgery	will patient satisfaction be higher in the former group?

Note: COPES = client-oriented, practical evidence search.

\*Students at the Columbia University School of Social Work.

\*\*Students at the University of Wisconsin–Eau Claire School of Social Work.

sought. This is probably the most common pitfall. Practitioners tend to pose questions as if they were in a conversation with a person (where context can be understood), rather than attempting to communicate with a computer. Key concepts, interventions, and outcomes must be carefully considered and clearly articulated. Asking students to critically think about and discuss their questions seems to bring about greater clarity (i.e., What are alternative hypotheses? How will you know if an outcome is attained? In what specific ways might this intervention help or harm your client? What, exactly, do you mean by “better functioning”?). Other sources of terms to more accurately mark topics can be found in database thesauri (e.g., MeSH [Medical Subject Heading] terms in Medline, mapping to subject headings in the Ovid database) as well as known articles that address the topic.

- Asking incomplete questions. For example, asking effectiveness or prevention questions that do not include an alternate intervention. Doing nothing is an alternative course. However, not specifying an alternative implies that whatever is done will be better than nothing, which may not be the case.
- Incorrectly labeling a problem, procedure, or outcome. Lay terminology and clinical jargon are often absent in databases and should be used as supplemental search terms rather than primary search terms.
- Asking two or more questions within one question. Practitioners often get excited and put too many items into a single question, making it unwieldy. Better to hone a number of good questions.

### *Learning How to Search Efficiently*

Another example of a student question, posed by CariLyn Imbery, illustrates the process by which reliable and valid decision aids can be obtained and used in the field. CariLyn works as an intern in the Child Protective Services Intake Unit at the Eau Claire (Wisconsin) County Department of Human Services. She and her supervisor were interested in finding ways to prevent maltreated children from having to reexperience the trauma of abuse. They decided that an accurate risk-assessment instrument offered the best opportunity for identifying those parents who were most likely to reabuse their children. Using the COPES method, CariLyn posed the question: For parents or guardians of children who have, by investigation, been found to have abused their child, which risk-assessment scale would most accurately, reliably, and inexpensively identify those who would reabuse their child? Separating this question into the four categories further clarified it and formed the basis for a subsequent search (Table 2). Key concepts were distilled from each part of the question. For example, “For parents or guardians of children who have, by investigation, been found to have abused their child” was broken down into the conceptual terms “parent,” “guardian,” “child abuse,” and “child maltreatment.” Given that searches should move from the general to the specific, several of these terms would likely have proven to be too specific to begin with. These were italicized to mark them for later use here if the number of hits in the database needed to be decreased.

From here, identified terms should be translated into terms as they appear in the database. This is generally done through interfacing with the database’s thesaurus or mapping feature. For instance, entering “child abuse” into Ovid’s version of PsycINFO and mapping the

TABLE 2. Search Planning Worksheet for Carilyn Imbery's COPEs Question

	Client Type and Problem	What You Might Do	What You Want to Accomplish
Question	For parents or guardians of children who have, by investigation, been found to have abused their child	which risk-assessment scale	would most accurately and reliably identify those who would reabuse their child?
Concepts	<i>Parent, Guardian</i> Child abuse Child maltreatment	Risk assessment	Valid and reliable scale
Equivalent concepts in language of the database	Child abuse Child welfare Child protective services Foster care	Risk assessment Risk analysis	Use MOLES
Final concept search terms	Child abus* Child Welfare Child protective service* Foster care	Risk assessment* Risk analys*	Use MOLES
Combination of concept search terms	(Child abus* OR Child Welfare OR Child protect* service* OR Foster care) AND (Risk OR Risk assessment* OR Risk analys*)		
MOLES	(Predictive validity OR reliab* OR Valid OR Predictive value OR Test valid* OR Receiver operat* OR ROC OR Sensitivity OR Specificity OR False positive* OR False negative* OR Prognosis)		
Final combination of search terms	[(Child abus* OR Child Welfare OR Child protect* service* OR Foster care) AND (Risk OR Risk assessment* OR Risk analys*)] AND [(Predictive validity OR reliab* OR Valid* OR Predictive value OR test valid* OR Receiver operat* OR ROC OR Sensitivity OR Specificity OR False positive* OR False negative* OR Prognosis)]		

Note: COPEs = client-oriented, practical evidence search; MOLES = methodology-oriented locators for evidence searching.

term to its subject heading brought up the subject heading Child Abuse with 12,845 entries, a major subject heading containing all forms of child abuse (physical, sexual, neglect, etc.), and a major related subheading, Child Welfare. Exploration of this subheading revealed the terms "protective services" and "foster care," which looked promising as keyword searches. Next, the term "risk assessment" was mapped to the relevant terms "risk assessment" and "risk analysis." Subject headings and question constructs were then entered into the next row along with other important concepts to be searched as key words. In this

step, wildcards are essential: These are modifiers, usually placed at the end of a word, that make the letters to the left of the wildcard a root term that can have any ending. For instance, the \* in child abus\* includes *child abuse*, *child abuser*, and *child abusing*. Risk analys\* includes the terms *risk analysis* and *risk analyses*. Wildcards both expand search options and speed up the process, but practitioners should be aware that wildcards may have different rules for use across databases (e.g., a \$ or # might be used instead of a \*). The database's help file should be consulted until familiarity is achieved.

The last steps before beginning to search involve the correct combination of Boolean operators and the application of MOLES. Many students seem to get confused at this point, so careful consideration must be given. Terms that absolutely must be present in concert should be grouped and linked with an "AND" operator, while terms that may or may not be present in all documents sought should be grouped and linked by an "OR" operator. In CariLyn's search, the child abuse concept was grouped by "OR" operators (Child abus\* OR Child Welfare OR Protective service\* OR Foster care), as was the risk assessment group (Risk assessment\* OR Risk analys\*). These meta-concepts were then linked with AND statements, meaning that both meta-concepts had to be present in each citation.

At this point, if background information is desired, key-word terms need to be validated, or if there are only likely to be a few hits, this search can be run. However, if there is a great deal of research in this area and/or the practitioner wishes to cull the very best from the literature without poring over a full set of results, MOLES can be applied to further narrow the findings. In this case, since CariLyn clearly posed a risk/prognosis question, MOLES geared toward risk were applied and combined with the previous search (see Gibbs, 2003, p. 100, for a list of MOLES by question type). Using PsycINFO, a total of 24 articles were found. Among these, several compared the reliability and validity of various risk-assessment tools being used in practice (Baird & Wagner, 2000; Baird, Wagner, Healy, & Johnson, 1999; Camasso & Jagannathan, 1995, 2000; Fanshel, Finch, & Grundy, 1994; Lyons, Doueck, & Wodarski, 1996; Milner, 1989; Nasuti, 1991; Nasuti & Pecora, 1993; Reid, 1998). Two studies (Baird & Wagner, 2000; Baird et al., 1999) compared three widely used child abuse risk-assessment instruments (two

consensus based, one actuarial), finding that the actuarial risk-assessment model (a data-driven instrument that optimally weights risk factors) appears to have the greatest predictive power for detecting those parents who will reabuse their children. CariLyn is now in the process of obtaining this instrument and will introduce it to her agency for possible adoption in the field.

Some cautions are in order. All databases are not created equal, nor are all search strategies. In order to be safe, the practitioner should query several relevant databases before deciding that enough information has been obtained. When should searching cease? That is a difficult question. Searching is somewhat of an art form. The inclusiveness of the words chosen, the combinations applied, the databases chosen—each step in the process may change the results obtained. However, the likelihood of finding good evidence is fairly high when this method is coupled with an intense commitment to provide the very best services to clients. Sometimes, though, no evidence will be found. While disheartening, this is the state of affairs in the field. The client should be fully informed, and more emphasis should be placed on client values and clinical expertise.

One of the methods we have found that works for teaching this process is to create and maintain a culture of critical inquiry within the classroom. Students are encouraged to question many of the basic tenets of their profession as well as their own thinking. Struggling with difficult questions is modeled, even required, throughout the course. Socratic methods are used early and often. Articles are assigned with contradictory opinions or findings. Connections are made between disparate sources of information. In essence, students are taught to be critical consumers of the information they receive in both the classroom and the field. This is a difficult role for the

instructor, who may feel immediately obligated to provide authoritative answers to questions raised in the classroom. But students will not be in the classroom forever and must learn to think critically from the very beginning.

Another part of the process is to cultivate a sense of investment in the posing and answering of questions. By linking COPES questions to their own or another's client, practitioners can give their questions a sense of urgency. The search process can also dovetail nicely into literature review sections of final papers. Familiarizing students with the online library system and taking them through a number of live searches are also essential. Simply reading about how to search is too abstract, and many of the pitfalls have the potential to cause frustration and increase search time.

### ***Learning How to Critically Appraise Evidence***

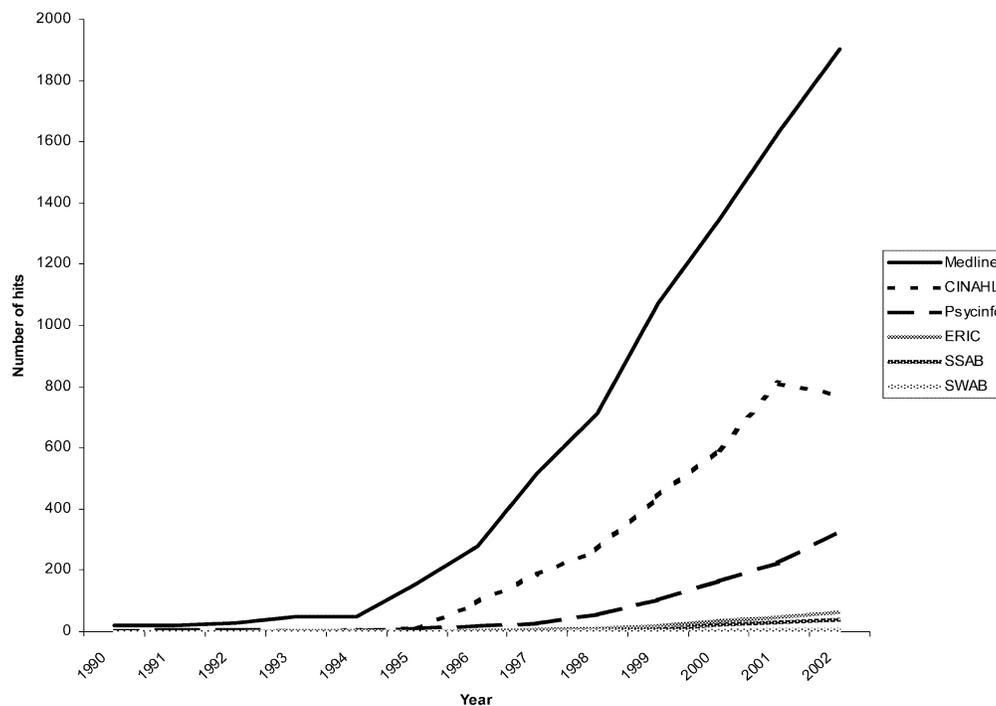
Once sources are acquired—hopefully, sources obtained electronically as full text documents—the next problem is to critically appraise evidence for its methodological quality and implications for practice. Practitioners may not have enough time to get original articles before action is required, but our students are required to get the original sources in order to practice critical appraisal. Gibbs (2003) has developed rating forms to assess the quality of sources specific to each of the five question types (including qualitative). Some of these forms to rate study quality and treatment effect size can be completed with reasonable interrater agreement by undergraduates (Gibbs, 1989). Still, students with more research training may be better able to understand how to apply criteria on the rating forms. A brief overview of basic statistics and study designs used in articles can help students become more informed consumers of informa-

tion. At the very least, students who become familiar with the constructs contained in the forms will be able to identify key indicators of quality in any article they read.

### **The Benefits and Challenges of Evidence-Based Practice**

One of the major benefits of EBP is its potential for improving interdisciplinary understanding and cooperation. One of our EBP courses contains eight different majors (social work, psychology, public relations, premedicine, nursing, communication disorders, special education, and health care administration). Students in this course each solicit a question from a practitioner in their respective disciplines. They then do exercises in the course to clarify their questions; share their questions; help each other search for evidence regarding each fellow-student's question; practice critically appraising each others' evidence; and present a brief written and oral summary of their findings. A major component of this course is to increase cross-discipline teamwork by providing a common approach to defining questions and answering them, as well as facilitating an understanding of the kinds of problems that confront colleagues in other disciplines. Other benefits include:

- More informed beginnings with clients. Practitioners have both the responsibility and the flexibility to consider the diversity of client backgrounds, conditions, preferences, and values when planning and implementing treatment interventions.
- Assuming the best about trained helpers. That is, this method believes in and relies on the intelligence and skills of practitioners to effectively search, evaluate, and apply current best evidence.
- Increasing the likelihood that effective interventions will be used.



**FIGURE 2**

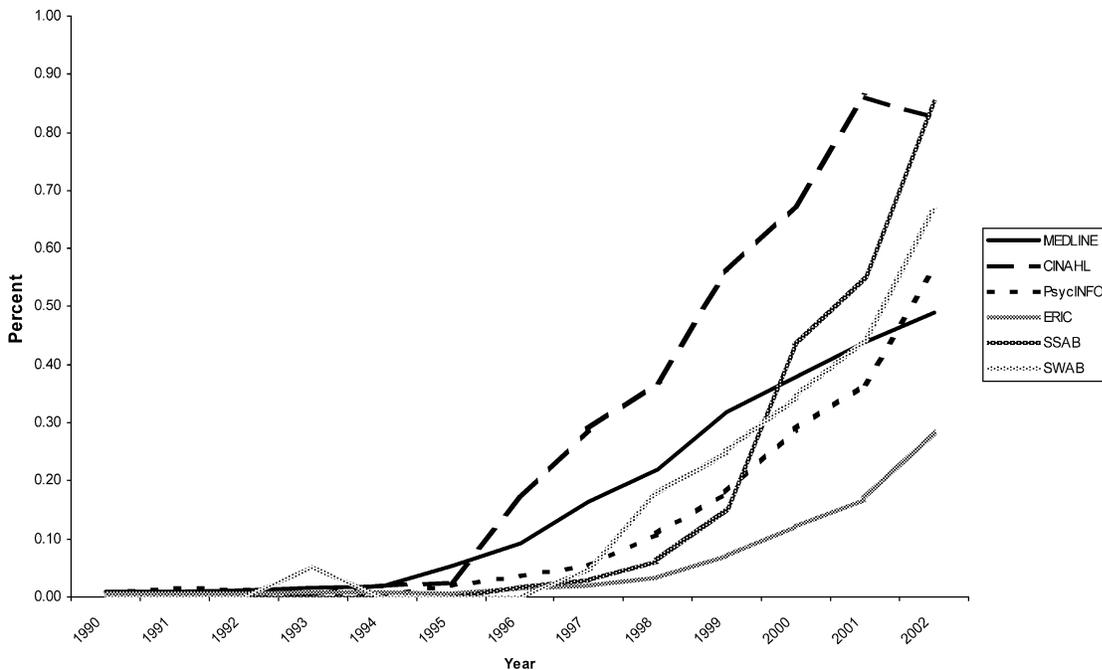
Number of “evidence-based” hits by discipline: 1990–2002. *Note:* Databases searched: Medline (medicine); CINAHL = Cumulative Index to Nursing and Allied Health Literature (nursing); PsycINFO (psychology); ERIC = Educational Resources and Information Center (education); SSAB = Social Services Abstracts (social services); and SWAB = Social Work Abstracts (social work). Search was conducted in October 2003 using the key-word term *evidence-based* (including title, abstract, and subject headings) for each year (1990–2002). Searches were limited to studies involving human subjects.

Despite these benefits, some challenges remain. Critics of EBP contend that practitioners are simply too busy to undertake lengthy searches and that effective searching and appraisal techniques require advanced training and skills (Sackett et al., 2000). While much has been made of these limitations, the tools outlined here minimize such concerns. After learning the basics, high-quality searches need not take more than a few minutes. Further, once information is gathered, practitioner knowledge is continually enhanced (with respect to both client conditions and effective search techniques), making future searches even more efficient. Challenges may also exist for practitioners attempting to use this method with

insufficient equipment and funding for database access (including access to full text articles) and a lack of evidence in certain areas. Steps should continue to be taken to improve search skills, increase access to databases, and expand the body of knowledge used to make key clinical decisions.

### Current State and Future Directions

EBP appears to be gaining momentum in the helping professions, but trends in its use may be uneven across disciplines. A search for the number of documents with the term *evidence-based* was conducted in six disci-



**Figure 3**

Percentage of "evidence-based" hits by discipline: 1990–2002. *Note:* Databases searched: Medline (medicine); CINAHL = Cumulative Index to Nursing and Allied Health Literature (nursing); PsycINFO (psychology); ERIC = Educational Resources and Information Center (education); SSAB = Social Services Abstracts (social services); and SWAB = Social Work Abstracts (social work). Search was conducted in October 2003 using the key-word term "evidence-based" (includes title, abstract, and subject headings). Searches were limited to studies involving human subjects.

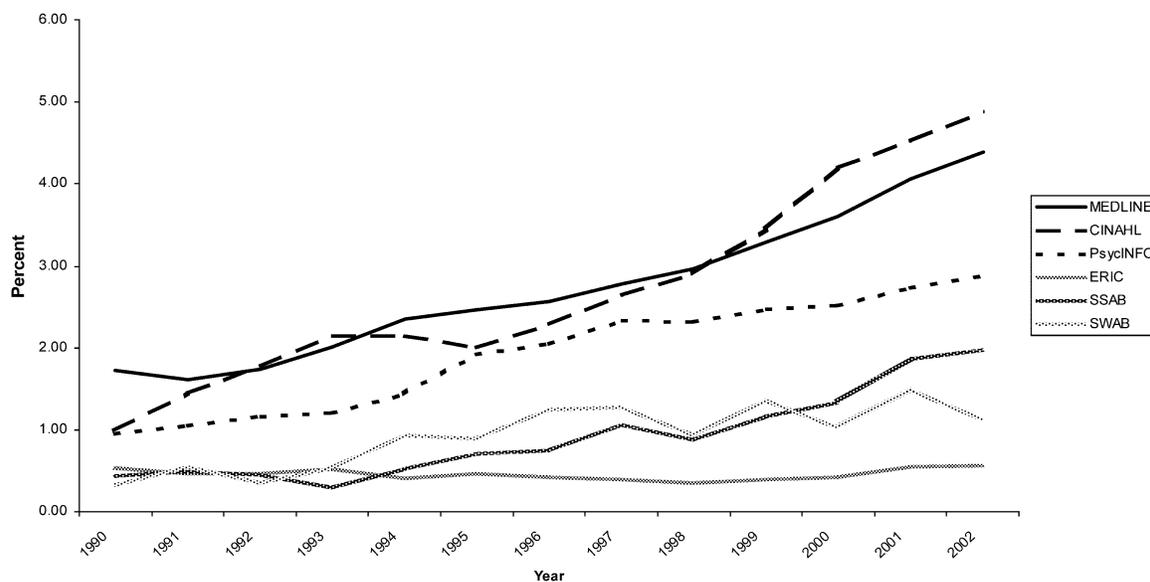
pline-specific databases for the years 1990–2002 (Figure 2).

Beginning in 1995, an elbow upward appears for medicine (Medline) and then for nursing (CINAHL) in 1996. This trend is followed by an awakening in psychology (PsycINFO) in 1997 and, perhaps, the beginning of a trend in social services (SSAB), education (ERIC), and social work (SWAB). However, the sheer number of hits is at least partially a function of the number of articles contained in each database. Therefore, a proportional representation of articles using the term *evidence-based* was constructed using these same databases (Figure 3). This resulted in substantial differences. As a proportion of studies using the term *evidence-based*, nursing (CINAHL) and social services (SSAB) ended highest, followed by social work

(SWAB), psychology (PsycINFO), medicine (Medline), and education (ERIC). Using this method, all groups showed strong upward trends by 1998.<sup>1</sup>

Yet the term *evidence-based* may not be an indication of the proportional increase in articles that meet the criteria of current best evidence as identified by methodological filters. Applying MOLES to these same databases and stratifying by year, a search was conducted for studies that had a higher likelihood of answering effectiveness or prevention questions using the key-word terms: random\* assign\* OR control\* clinical trial\* OR random\* control\*

<sup>1</sup> Though it should be noted that even the databases with the highest proportion of hits contained such studies less than 1% of the time.



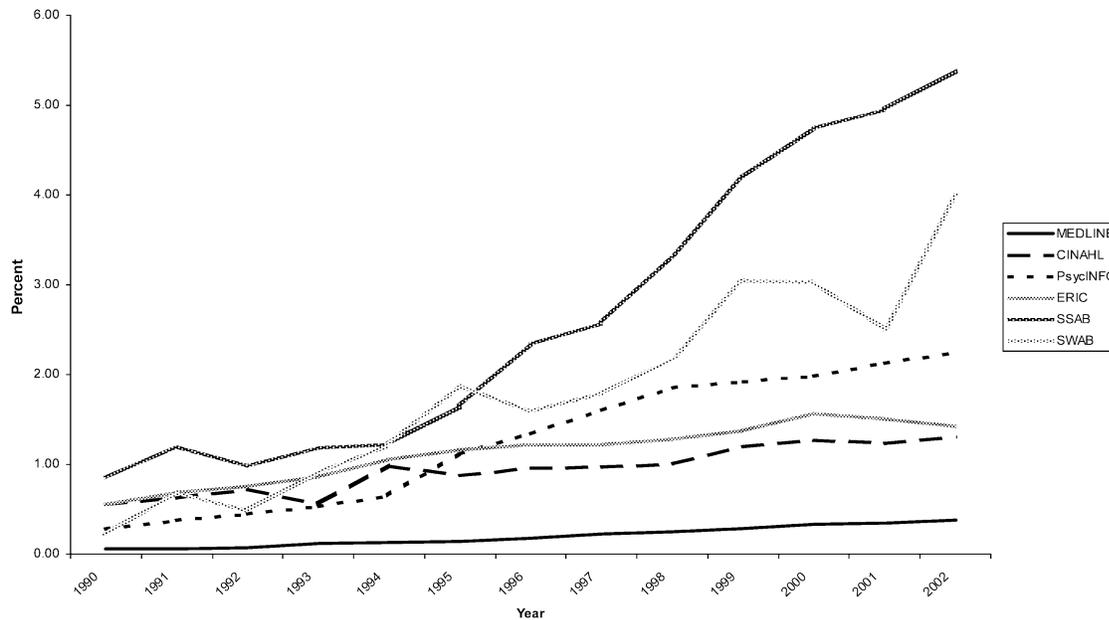
**Figure 4**

Percentage of MOLES (methodology-oriented locators for evidence searching) effectiveness, prevention, or systematic reviews by discipline: 1990–2002. *Note:* Databases searched: Medline (medicine); CINAHL = Cumulative Index to Nursing and Allied Health Literature (nursing); PsycINFO (psychology); ERIC = Educational Resources and Information Center (education); SSAB = Social Services Abstracts (social services); and SWAB = Social Work Abstracts (social work). Search was conducted in October 2003 using the following command for each year (1990–2002): random\* assign\* OR control\* clinical trial\* OR random\* control\* trial\* OR clinical trial\* OR meta anal\* OR meta-anal\* OR metaanal\* OR systematic review\* OR synthesis of studies OR study synthesis. Searches were limited to studies involving human subjects.

trial\* OR clinical trial\* OR meta anal\* OR meta-anal\* OR metaanal\* OR systematic review\* OR synthesis of studies OR study synthesis (Figure 4). Overall, the proportion of studies using true experimental designs (i.e., random assignment) or systematic review techniques has been steadily increasing since 1990 in almost all fields of practice. The sole exception is ERIC, the education database. Proportional increases over the 12-year span were greatest for CINAHL (from 1% to almost 5%) and SSAB (from 0.5% to 4.5%). In 2002, Medline (4.4%) and CINAHL (4.9%) had the highest percentage of such studies, and ERIC (0.5%) had the lowest (remaining fairly stable throughout the observation period). SWAB, while showing overall increases, peaked in 1997 with 1.28%, decreasing to 1.13% in 2002. This was the only

database that showed somewhat of a reversal in this area, leading to further exploration.

There may be several reasons for the SWAB lag other than a lack of high-quality, empirical studies being conducted and reported by social workers. For instance, there may be a trend among quantitative social work scholars to publish outside of mainstream social work journals, choosing instead to publish in more prestigious psychology or public health journals. A more detailed search of faculty publications in allied fields might reveal such a trend. Added to this possibility is the prospect that social work scholars are undertaking and publishing more qualitative research. A search of these same databases was conducted using the MOLES qualitative study OR qualitative analys\* OR in depth interview\* OR in-depth



**Figure 5**

Percentage of MOLES (methodology-oriented locators for evidence searching) qualitative study hits by discipline: 1990–2002. *Note:* Databases searched: Medline (medicine); CINAHL = Cumulative Index to Nursing and Allied Health Literature (nursing); PsycINFO (psychology); ERIC = Educational Resources and Information Center (education); SSAB = Social Services Abstracts (social services); and SWAB = Social Work Abstracts (social work). Search was conducted in October 2003 using the following command for each year (1990–2002): (qualitative study) or (qualitative analys\*) or (in depth interview\*) or (in-depth interview\*) or (participant observation) or (focus group\*). Searches were limited to studies involving human subjects.

interview\* OR participant observation OR focus group\*. Although all databases showed an increasing proportion of qualitative studies, SWAB and SSAB far outpaced other disciplines in this respect.

While qualitative studies are indispensable for understanding and explaining human behavior, as well as for generating hypotheses, the generally lower proportion of studies employing random assignment in the professional literature of social work and social services may point to a deficit of information needed by practitioners to make crucial treatment decisions. At the very least, these disciplines must extend beyond their own boundaries to find current best evidence for effectiveness and prevention studies.

## Summary and Conclusions

Though often misrepresented and misunderstood across the helping professions, EBP is a process, not a cookbook set of guidelines and standards imposed from above, not what we have been doing all along under another name, and not something that can be mastered quickly without learning new skills and new technology. EBP assumes a predisposition to inquiry as well as the impetus to pose specific questions. It assumes a fair-minded approach that eschews selling a particular position. Clients are served first, foremost, and always by identifying accurate assessment procedures and effective interventions, and by integrating them with client preferences and values. By searching

equally hard for disconfirming evidence as well as for evidence that confirms a notion, and by objectively applying critical appraisal of evidence specific to each client (in real time, as events unfold), evidence-based practitioners may be able to integrate research into their daily practice as never before.

## References

- Baird, C., & Wagner, D. (2000). The relative validity of actuarial- and consensus-based risk assessment systems. *Children and Youth Services Review, 22*, 839–871.
- Baird, C., Wagner, D., Healy, T., & Johnson, K. (1999). Risk assessment in child protective services: Consensus and actuarial model reliability. *Child Welfare, 78*, 723–748.
- Bandolier. (2004). (Website). Retrieved February 4, 2004, from <http://www.jr2.ox.ac.uk/bandolier>
- Blaser, M. J. (1996). The bacteria behind ulcers. *Scientific American, 274*, 104–107.
- Camasso, M. J., & Jagannathan, R. (1995). Prediction accuracy of the Washington and Illinois risk assessment instruments: An application of receiver operating characteristic curve analysis. *Social Work Research, 19*, 174–183.
- Camasso, M. J., & Jagannathan, R. (2000). Modeling the reliability and predictive validity of risk assessment in child protective services. *Children and Youth Services Review, 22*, 873–896.
- Cordell, W. H. (1999). Number needed to treat (NNT). *Annals of Emergency Medicine, 33*, 433–436.
- Evidence-Based Medicine Working Group. (1992). Evidence-based medicine. A new approach to teaching the practice of medicine. *Journal of the American Medical Association, 268*, 2420–2425. For current information from this group, see: <http://www-hsl.mcmaster.ca/ebm>
- Fanshel, D., Finch, S. J., & Grundy, J. F. (1994). Testing the measurement properties of risk assessment instruments in child protective services. *Child Abuse & Neglect, 18*, 1073–1084.
- Gambrill, E. (2003). Evidence-based practice: Sea change or the emperor's new clothes? *Journal of Social Work Education, 39*, 3–23.
- Gibbs, L. E. (1989). Quality of study rating form: An instrument for synthesizing evaluation studies. *Journal of Social Work Education, 25*, 55–67.
- Gibbs, L. E. (2003). *Evidence-based practice for the helping professions: A practical guide with integrated multimedia*. Pacific Grove, CA: Brooks/Cole–Thomson Learning.
- Lyons, P., Doueck, H. J., & Wodarski, J. S. (1996). Risk assessment for child protective services: A review of the empirical literature on instrument performance. *Social Work Research, 20*, 143–155.
- McKibbin, A., Eady, A., & Marks, S. (1999). *PDQ evidence-based principles and practice*. Hamilton, Ontario: B. C. Decker.
- Milner, J. S. (1989). Applications and limitations of the Child Abuse Potential Inventory. *Early Child Development and Care, 42*, 85–97.
- Nasuti, J. P. (1991). A test of internal consistency and interrater reliability of the Utah Risk Assessment Instrument. *Dissertation Abstracts International, 51*(12A, Pt 1), 4278. (UMI No. 9112748)
- Nasuti, J. P., & Pecora, P. J. (1993). Risk assessment scales in child protection: A test of the internal consistency and interrater reliability on one statewide system. *Social Work Research & Abstracts, 29*, 28–33.
- O'Neill, J. V. (2003). Nearly all members linked to Internet. *NASW [National Association of Social Workers] News, 48*, 9.
- Reid, R. A. (1998). Content validity and inter-rater reliability of a Hopi child abuse risk assessment instrument (Doctoral dissertation, University of North Dakota, 1998). *Dissertation Abstracts International, 59*(3B), 1413.
- Sackett, D. L., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (1997). *Evidence-based Medicine: How to practice and teach EBM*. New York: Churchill Livingstone.
- Sackett, D. L., Rosenberg, W. M., Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence-based medicine: What it is and what it isn't. *British Medical Journal, 312*, 71–72.

- Sackett, D. L., Straus, S. E., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (2000). *Evidence-based medicine: How to practice and teach EBM* (2nd ed.). Edinburgh: Churchill Livingstone.
- Science Blog. (2003, October 17). World's fastest network launched to connect Teragrid sites. Retrieved February 3, 2004, from <http://www.scienceblog.com/community/article1151.html>
- Slawson, D. C., & Shaughnessy, A. F. (1997). Obtaining useful information from expert based sources. *British Medical Journal*, 314, 948-949.