The Evidence For and Against Evidence-Based Practice

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Over the years, there have been many developments and changes in the way that social interventions and clinical treatments have been delivered, including the introduction of behavioral and cognitive-behavioral therapies (e.g., Lazarus, 1971; Thomas, 1967), the move toward time-limited, task-structured interventions (Mullen, Dumpson, & Associates, 1972; Reid & Epstein, 1972), and the use of manuals that guide what practitioners can and cannot do (Luborsky & DeRubeis, 1984). Each in its time generated considerable debate, some of it quite heated. However, it is probably safe to say that no innovation has generated as much argument and heat as the introduction of evidence-based practice (EBP) and policy. EBP has been both heralded as one of the major advances in health care, education, criminal justice, and the human services, promising to revolutionize both policymaking and practice (e.g., Gambrill, 1999; Gibbs & Gambrill, 2002; Gray, 2001; Macdonald, 1999; Marshall, 1995; Sackett, Richardson, Rosenberg, & Haynes, 1997), and excoriated as a development that will reduce professionals to mindlessly (and soullessly) following recipe books for the betterment of insurance companies (e.g., Grahame-Smith, 1995; Morgan, 1995). It has led, on the one hand, to a number of journals, texts, and centers based on its principles (e.g., *Evidence-Based Mental Health, Evidence-Based Medicine, Evidence-Based Nursing, ACP Journal Club*; Gibbs, 2003; Gray, 2001; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000), and on the other, to articles in leading journals holding it up to ridicule (e.g., Britton, Evans, & Potter, 1998; CRAP Writing Group, 2002; Webb, 2001).

Where we stand on this can probably best be summed up by the old joke of the couple who come to see their rabbi. The man begins with a long litany of complaints about his wife, to which the rabbi replies, ''You're right, you're right.'' The wife then gives her long list of complaints about her husband, to which the rabbi again replies, ''You're right, you're right.'' After the couple leave, the rabbi's wife yells at him, ''How can you tell them both that they're right? One of them must be wrong!''; to which the rabbi replies, ''You're right, you're right.'' Both of us are believers in EBP (one

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in fact is a coeditor of *Evidence-Based Mental Health*), but we temper this with a healthy dose of skepticism. EBP has, in our view, done much to advance the field, with its insistence that assessment and intervention methods be based on the best available evidence and that the opinions of experts are just that—opinions, rather than proven verities. By the same token, EBP cannot, in and of itself, answer all of the questions that arise in policy and practice. In evidence-informed policy, few would discount the role of public opinion, political expediency, and ideology as shaping even the most rational use of research evidence (Grayson & Gomersall, 2003). In clinical practice, why do not even the best practices achieve a 100% cure rate, or come even close to this? Why do some people improve but others do not or may even deteriorate? What characteristics determine who will respond to one form of treatment but not to others? Why do some people suffer from severe stress reactions to trauma, while others appear to shrug off its effects? Why do some interventions that work well for those who enjoy middle-class status not work for those who are poor or less educated?

In the next two issues of this journal, many experts in the area, and from a number of disciplines—social work, social policy, psychology, education, psychiatry, family medicine, internal medicine—will discuss the history, practice, and teaching of EBP, as well as some of the problems it faces and possible alternatives. In this editorial, we will set the scene by looking at some of the objections to EBP as well as some arguments in favor of it. But first, we describe what we mean by EBP.

The Meaning of Evidence-Based Practice

The contributors to this special issue present various descriptions of EBP reflecting its evolving character. Some describe EBP as applying only to clinical forms of practice, whereas others describe policy and management applications. In the United Kingdom it is customary to refer to both *evidence-based policy and practice* (e.g., Gray, 2001; Solesbury, 2001), whereas in the United States, reference is more typically made to *evidence-based practice*, focusing on clinical issues (Gibbs, 2003). For us, EBP encompasses policy, management, and direct or clinical practice. The field needs evidence-based policies, evidence-based management, and evidence-based direct services. However, the articles in this special issue are focused primarily on what would be considered clinical or direct practice applications. This is not meant to imply that evidence-based policy and management are less important.

While the shift toward EBP first emerged in medicine and health care, EBP is quickly taking hold in mental and behavioral health, education, criminal justice, and social work. Although EBP is most prominent in the United Kingdom, Canada, and the United States, it is now popular in many northern European countries, including Sweden, Finland, Norway, Denmark, and the Netherlands, where outcomes measurement and effectiveness in public services are increasingly seen as important by governments and citizens (Mullen, in press; Mullen, 2003a, 2003b). Indeed, there are indications that EBP will be required in the not-too-distant future by many governmental authorities, insurers, and accreditation bodies. In spite of this rapid movement toward EBP, we find a wide range of associated meanings. As described in the literature, EBP ranges in meaning from, on the one hand, some recognition of the need to use research findings to aid in practice decision making to, on the other hand, a paradigm shift (Gambrill, 2003). We take the position that EBP requires a major philosophical and technological change for the field, rather than simply an incremental

increase in the use of research in decision making. Accordingly, we consider EBP to encompass both evidence-based practices as well as an *evidence-based process*. For us an *evidence-based practice* is any practice that has been established as effective through scientific research according to a clear set of explicit criteria (Drake et al., 2001). For example, in 1998 a Robert Wood Johnson Foundation consensus panel concluded that its review of research findings supported identification of several evidence-based psychosocial practices for the treatment of persons with severe mental illness: assertive community treatment, supported employment, family psychoeducation, recovery skills training and illness self-management, standardized pharmacological treatment, and integrated dual-disorder treatment. To be considered EBP, four selection criteria were used: (1) the treatment practices had been standardized through manuals or guidelines, (2) the treatment practices had been evaluated with controlled research designs, (3) important outcomes were demonstrated through the use of objective measures, and (4) the research was conducted by different research teams (Torrey et al., 2001). Accordingly, we can say that EBPs were identified for the treatment of persons with severe mental illness through efficacy trials meeting these four criteria.

As a process, EBP has been defined in medicine as ''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. 71) and the ''integration of best research evidence with clinical expertise and patient values'' (Sackett et al., 2000, p. 1). In the United Kingdom, *social care EBP* has been described as ''the conscientious, explicit and judicious use of current best evidence in making decisions regarding the welfare of service-users and carers'' (Sheldon, 2003, p. 1). In the United States, *social work EBP* is described as follows: ''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'' (Gibbs, 2003, p. 6). *Evidence-based health care* has been described as ''a discipline centred upon evidence-based decision-making about groups of patients, or populations, which may be manifest as evidence-based policy-making, purchasing or management'' (Gray, 2001, p. 9). In all of these descriptions EBP is seen as a decision-making process in which policymakers, managers, or practitioners make decisions. Accordingly, we consider EBP to be a way of doing practice which involves an individualized, thoughtful process of using evidence to make collaborative decisions with actual or potential service users. Because evidence can play a strong or weak role in this process, some prefer to use alternate terms such as *evidence-informed practice* or *evidence for practice and policy* (Grayson & Gomersall, 2003; Nutley, 2003). Here, we describe politicians and policy analysts as using ''evidence'' for decision making.

When we describe EBP this way to audiences and to our students, typically the first response is that the approach has obvious, reasonable merit. We have been asked how anyone could object to it. In turning to a discussion of this question, we draw from prior analyses of arguments for and against EBP (Gambrill, 1999, 2001, 2003; Gibbs & Gambrill, 2002; Pawson, 2002; Sackett et al., 2000; Straus & McAlister, 2000; Webb, 2001).

The Arguments Against Evidence-Based Practice

The arguments against EBP are now well established and fully discussed in the literature,

based on a careful review of which Straus and McAlister (2000) developed a classification of criticisms of evidence-based medicine (EBM) which apply equally well to applications in other EBP fields. Since their classification has been used by most other reviewers, we outline the criticisms before we discuss some of them specifically in more detail. Straus and McAlister grouped the criticisms as addressing either *limitations* or *misperceptions* of EBM. Two types of limitations were identified: those applying to medical practice in general (shortage of coherent, consistent scientific evidence; difficulties in applying evidence to the care of individual patients; and barriers to the practice of high-quality medicine) and those applying specifically to EBM (the need to develop new skills; limited time and resources; and paucity of evidence that EBM works). Criticisms resulting from misperceptions of EBM were identified as being that it (1) denigrates clinical expertise, (2) ignores patients' values and preferences, (3) promotes a ''cookbook'' approach to medicine, (4) is simply a cost-cutting tool, (5) is an ivory-tower concept, (6) is limited to clinical research, and (7) leads to therapeutic nihilism in the absence of evidence from randomized trials (p. 838). These criticisms have been repeated and discussed by most subsequent reviewers (Gambrill, 2003; Gibbs & Gambrill, 2002; Sackett et al., 2000). Others have criticized EBP on philosophical grounds, arguing that an evidence-based, rational model of decision making does not fit the realities of individualized, contextualized practice, especially nonmedical practice, wherein problems are less well defined (Webb, 2001). Some have called attention to limitations in the methodology of systematic reviews, such as meta-analysis, which provide the evidence for use in EBP (Pawson, 2002). Concern has been expressed about how evidence-based policy is possible when so many competing factors enter into policymaking, such as public opinion, resource constraints, and ideology (Grayson & Gomersall, 2003; Nutley, 2003).

The contributors to these two special issues address many of these criticisms. We comment next on those we consider most pressing.

Limitations of Evidence-Based Practice

The Shortage of Evidence. EBP, as the term implies, is predicated on the belief that what we do as professionals should be based on the best available evidence. Generally, the best evidence comes from well-designed and -executed randomized controlled trials (RCTs) or, better yet, meta-analyses of a number of RCTs (Egger, Smith, & O'Rourke, 2001). Studies of prognoses require inception cohorts (that is, groups of people who enter the study at equivalent points in their natural history), relatively complete follow-up (around 85% of the sample), and a sufficient duration to ensure that all of the people could have reached the end point, whether it be developing the disorder under study or achieving remission of symptoms (Fletcher, Fletcher, & Wagner, 1988). Assessment and diagnostic studies must involve blinding of raters who complete one test to the results of the other test, as well as demonstration of the reliability and validity of the instruments (Streiner, 2003).

The question that faces proponents of EBP is whether there are enough high-quality studies so that evidence-based decisions can be made. Surprisingly for a field that places a high premium on research, few studies have examined this. Ellis, Mulligan, Rowe, and Sackett (1995) looked at the decisions that were made regarding 109 medical inpatients. They found that 53% of the treatment decisions were based on the results of RCTs and that for an additional 29% of the patients, there was unanimous agreement that good nonexperimental evidence existed. Using similar methods, Geddes, Game, Jenkins, and Sackett (1996) found that for 40

psychiatric inpatients, evidence from RCTs or meta-analyses supported the treatment decisions 65% of the time. So the conclusion at this point, based on just a few studies, is that there are still many decisions that are made that are not based on good evidence, but the picture is not nearly as bleak as opponents of EBP would have us believe. Professionals must remember that when they make decisions for which little or no evidence exists, they should exercise caution and perhaps be even more vigilant in monitoring outcomes.

Applying the Results to Individuals. The results of RCTs are analyzed by comparing the mean score of the experimental group against that of the placebo or control group (or some comparable summary statistic). However, this masks the fact that there is always individual variability around the means, as well as overlap in the distributions of scores for the two groups. The result of this is that a proportion of people in the experimental group actually do worse than some in the control group, and conversely some in the comparison group improve more than some people in the active treatment group. The implication is that practitioners cannot blindly apply a ''proven'' procedure and assume that a particular individual receiving that procedure will benefit (Seeman, 2001). This has led some critics to reject the whole notion of EBP, stating that results of trials are incapable of being applied at the level of the individual (e.g., Persons & Silberschatz, 1998) and that the primary determinant should be the practitioner's judgment (Garfield, 1998).

There are a number of ways of responding to this valid criticism. The first is that we are at least able to quantify the probability with which an individual person will respond to a given procedure. This value is called the *number needed to treat* (NNT) (Laupacis, Sackett, & Roberts, 1988), which is the number of people who must be treated in order for there to be one additional success. For example, based on a study by Wood, Trainor, Rothwell, Moore, and Harrington (2001), which was aimed at reducing the risk of deliberate self-harm, the staff at *Evidence-Based Mental Health* calculated an NNT of 4. This means that in order to reduce by one the number of adolescents who harmed themselves, four had to be seen in therapy. For the other three, either therapy did not work or, more likely, they would not have harmed themselves again even if they had not been seen in treatment. While this may sound disappointing—as we would like to believe that every person benefits from therapy—it is typical of treatments in this area, and actually compares very favorably with many medical interventions. For example, a class of drugs called the statins have been hailed as lifesavers because they control cholesterol levels. In one study (LIPID Study Group, 1998), the NNT was 44 for patients with coronary heart disease, and has been reported to be at least four times higher for those without heart problems (Hebert, Gaziano, Chan, & Hennekens, 1997). For a new (and very expensive) drug that lowers the risk of stroke, the NNT was 115 over a 3-year period compared with just taking aspirin (CAPRIE Steering Committee, 1996).

A second response to the criticism is that the alternative to using evidence-based interventions—with their known rate of failure—is to use unproven procedures, based only on the hope that they may work, but without any real knowledge of how often they do or do not, except our recall of successful cases. However, memory is a slippery thing. We do very well in recalling our successes, but very poorly in remembering our failures—what has been called the ''denominator problem.''

A third response is that EBP does not mean only applying the results of large randomized trials conducted by others. Practitioners can and should view each person as an ''$N = 1$''

study (Barlow & Hersen, 1984). That is, EBP also involves using techniques such as interrupted time series, multiple baseline assessments, before-after designs, and the like, combined with objective measures of functioning, with every person seen (Lueger et al., 2001; Streiner, 1998).

Training, Time, and Resources. In addition to the need for evidence, EBP requires that professionals be trained in the skills necessary to find and critically use evidence. It also means that, once trained, they have the time to do computer-based searches, and therefore that computers and access to search engines are available. Training does not appear to be a problem. Both of us have found our students to be eager and engaged learners of EBP. Articles in this series discuss highly successful programs with students in psychology, social work, nursing, premedicine, communication disorders, special education, public relations, and health care administration (Shlonsky and Gibbs) and psychiatry residents (Bilsker and Goldner). These reports correspond with our experiences that students and practitioners are avid learners eager to master the skills, given the opportunity. Each new generation (where in this context a generation is no more than about 5 years) is more comfortable and proficient with computers than the last, and searching the Web for information is second nature to them.

Searching for evidence is becoming easier each year. Organizations in which human service and health care professionals work can provide access to original articles by subscribing to services such as PsycINFO (the American Psychological Association's database of abstracts), CINAHL (Cumulative Index to Nursing and Allied Health Literature), Ovid, ERIC (Educational Resources Information Center), and *AARP Ageline*. More importantly, people can log on to *Evidence-Based Medicine, Clinical Evidence, ACP* [American College of Physicians] *Journal Club, Evidence-Based Mental Health*, the *U.K. National Health Service Database of Abstracts of Reviews of Effects*, the *Cochrane Database of Systematic Reviews*, the *Campbell Collaboration Reviews of Interventions and Policy Evaluations*, and other sites that select articles for their methodological rigor and provide meta-analyses, summarizing the results of RCTs. National and regional centers are being established to disseminate evidence through the Web to policymakers, practitioners, caregivers, and users (e.g., the Social Care Institute for Excellence in Great Britain, the Nordic Campbell Center in Copenhagen). As computers become less and less expensive, some organizations are able to place them within each unit, so that it is no longer necessary for practitioners to find time to go to a central library.

In order to save time for practitioners and researchers, Roberts and Yeager (2004) have compiled a major desktop reference book, consisting of 104 original chapters (including 56 flowcharts) on every facet of conducting EBP as well as numerous research exemplars. This landmark practical reference volume is reviewed in this special issue.

Time, though, remains a problem. For the practitioner rushing from one person to the next, sometimes finding even 5 minutes to do a search may not always be feasible. Time spent doing a search may save many hours later, because effort is not spent on a procedure that hasn't been shown to be effective, but we recognize that though this may seem reasonable in the abstract, it may not be practicable in reality. We would argue, however, that it may be worthwhile in these circumstances to save questions about the effectiveness of an intervention or the utility of an assessment procedure to the end of the day, and to spend 15 or 30 minutes reviewing the evidence. Also, organizations will need to consider how such information can be distributed best in their

particular contexts. For larger organizations this may mean expanded responsibilities for a centralized informatics department. For smaller organizations one or more individuals may need to be designated as information experts. In nearly all cases the process can benefit from teamwork and collaborative sharing.

Misperceptions About Evidence-Based Practice

It Denigrates Professional Expertise. One argument against EBP is that it is ''cookbook'' practice, replacing professional judgment with recipe-like, manualized procedures. It portrays EBP as saying: *For condition A, you must use procedure X; while for condition B, procedure Y must be used*, ignoring the experience and expertise of the practitioner and disregarding his or her knowledge of the individual. However, most views of EBP propose a process that is highly individualized, relying on practitioner discretion. For example, part of Sackett et al.'s (1996) definition of EBM is that it ''means integrating individual clinical expertise with the best available external clinical evidence from systematic research'' (p. 71). In other words, rather than depreciating expertise, EBP explicitly builds it into the equation. Evidence is like a map outlining a trip: It will show alternative ways of getting from one place to another, but the choice the driver makes depends on a number of factors, such as the trade-off between speed and scenery. In a similar manner, the professional is the person who must determine whether the evidence in the literature is applicable to a particular individual or policy question, bearing in mind unique circumstances, history, and the like.

It Ignores the Clients' Values and Preferences. This is a similar argument to the one above, but focusing on the perspective of the client, as opposed to that of the professional. Again quoting Sackett et al. (1996), EBM also involves ''the more thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions about their care'' (p. 71). That is, just as the professional's expertise cannot be left out of the picture, neither can the client's wishes. For example, there are two possible treatments for cancer of the larynx: surgery and radiation. The evidence clearly shows that surgery is better for prolonging life expectancy, but it leaves patients with a hole in their throats through which they must eat and drink; they must learn how to speak through the hole; and activities such as swimming are severely curtailed or prohibited. On the other hand, many patients opt for radiation therapy, because they feel that the quality of their lives is more important than the quantity of time remaining to them. This choice can be made only by the patient; the clinician can outline the options, the consequences that flow from each, and the evidence behind them but cannot override the desires of the individual.

EBP Is Simply a Cost-Cutting Tool. Especially with the growth of externally managed care in much of the Western world (even in social welfare states), there is a very real danger that EBP will be used by governments, insurance companies, and other payers as a means of imposing the fastest, least expensive form of intervention. However, this would be a gross distortion of the way EBP should be used, for two reasons. First, as mentioned previously, the choice between or among competing procedures is dictated not only by their respective effectiveness, but also by taking into consideration the practitioner's expertise and the client's wishes. Second, cost is only half of what should be examined; the other half is benefit, or effectiveness. That is, a proper criterion (although, as we have said, never the

sole criterion) should be the cost-benefit or cost-effectiveness of the intervention (for a discussion of the differences, see Drummond & Mooney, 1981; Torrance, Stoddart, Drummond, & Gafni, 1981); how much of the outcome does $1 buy? A given procedure may be relatively inexpensive to deliver, but if its results are limited, its cost/benefit ratio may actually be higher than a more expensive but much more effective procedure. For example, cognitive-behaviorial therapy is more costly than medication for treating depression. However, because it is far more effective in preventing relapse and rehospitalization, it is actually more cost effective than medication by itself in treatment-resistant patients (Scott, Palmer, Paykel, Teasdale, & Hayhurst, 2003).

EBP Leads to Research and Therapeutic Nihilism. As we mentioned above, and as a number of articles in this series illustrate, it is relatively easy to teach critical appraisal skills and the evidence-based approach to students and staff. Because effectiveness studies are done in the real world, where compromises must be made between rigor and reality and individuals are not nearly as compliant as undergraduate psychology students or white mice in adhering to research protocols, it is very easy to find flaws with all studies. It is much more difficult, though, to teach people to differentiate between limitations and fatal flaws; that is, to judge whether the problems are serious enough to jeopardize the results or should simply be interpreted with a modicum of caution. Without this judgment, it is easy to become nihilistic, feeling that no study can be believed and therefore that there is little or no evidence upon which to base EBP (which also provides a good excuse to avoid the necessity of keeping up with the literature).

However, EBP means being guided by the best *available* evidence. This means that in the absence of RCTs with no design flaws (if any exist), trials with limitations are better than no evidence at all. Most importantly, professionals and the users of professional services can at least proceed with due caution about probable risks and benefits when the evidence base for a decision is made explicit, even if this means that there is no or limited evidence supporting alternative choices. And, yes, when important gaps in the evidence base are identified, this can and should lead to new research so that future decisions can be better informed.

EBP Is at Philosophical Odds with the Realities of Practice. This criticism is reminiscent of the decades-old debate in the social and behavioral sciences about positivistic versus subjectivist approaches to knowledge. There is no easy resolution to such debates. In this context EBP is criticized as being a positivistic and mechanistic application of technical rationality, serving new managerialist strategies seeking to advance a performance culture that strips practitioners of their professional judgment and discretion (Webb, 2001). In contrast to EBP, it is alleged that ''real practice'' decision making is ''indeterminate, reflexive, locally optimal at best and based on a limited rationality'' and that ''cognitive heuristic devices are the determinants of decision making and not evidence,'' such that ''real practice'' decision making relies more on common sense than scientific, rational processes (Webb, 2001, p. 57; for a critical analysis of the heuristic view, see Mullen, 1985). We think that this criticism is correct in noting that evidence-based practitioners are concerned with outcomes, effectiveness, and performance and that they rely on clear reasoning about the best evidence available. Evidence-based practitioners do think that their actions probably will affect outcomes. However, EBP excludes neither complex decision making nor values, preferences,

inclinations, and commonsense considerations. Rather, the process is expansive, requiring careful reasoning on the part of the practitioner. And while it may be true that commonsense approaches prevail in the average practitioner's decision making, professional educational programs have as a goal preparing professional practitioners with knowledge and skills that go beyond common sense. It is correct that evidence-based practitioners are expected to use more than common sense in making important decisions with clients.

Summary

The history of all innovations has been described as going through three stages. Opponents first say that the new discovery won't work. Once it has been shown to work, the criticism changes to, ''OK, but it's not new.'' Acceptance finally comes when the critics say, ''It's new, and I invented it.'' Within the context of the length of time that the helping professions have existed, the history of EBP is quite short, probably somewhere between the first and second of these phases. As with many innovations, it stormed onto the scene, raising antibodies among many practitioners because of the brashness of some of its claims and the perception that it was trying to elbow aside established practice. But, as with all adolescents, EBP too matures and gains wisdom and judgment. For example, the original claims that practice *must* be based on the conclusions of RCTs and only RCTs have been softened in the face of reality to the use of the best *available* evidence. We are sure that over the next decade, not only will the reaction of practitioners change, but also the practice of EBP. Many of the articles in this series point to some of the directions that this may take; after all, EBP must be based on both evidence and practice.

An Invitation to Readers

This and the next issue of this journal comprise a wide range of articles pertaining to EBP, cutting across many disciplines. We are confident that a careful reading of these contributions will be a rewarding and enlightening experience for the reader. We trust that these special issues will add to the rapidly growing literature supporting the field's evolution toward evidence-based policy and practice (cf. Roberts & Yeager, 2004). We invite readers to send comments in response to the articles in this and the next issue of this journal. Space permitting, we will publish reader comments in the next and subsequent issues. Contributors will be invited to reply to reader comments.

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