Evidence-based social work practice: Challenges and promise

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Following an outline of basic premises that lend meaning to and support evidence-based practice (EBP), this article discusses three obstacles that challenge implementation of EBP in routine practice: (1) the uncritical transfer and use of lay decision heuristics, (2) espousal of epistemologies that are inhospitable to EBP, and (3) the dilemma that is inherent in idiographic application of empirical generalizations. The author presents a conception of practice guidelines for intervention (PGI), in which principles and procedures drawn from single-system design and systematic planned practice are integrated. The PGI culminates with an outline of an algorithm for implementation of empirically supported interventions that reconciles its uncertain fit to an individual client through a recursive adaptation—application—evaluation process to maximize outcome attainment. Implications for research and for professional education are drawn.

Key words: evidence-based practice; practice guidelines; implementation; interventions

Evidence-based practice (EBP) has been advocated in a number of human services professions, first in medicine (Evidence-Based Medicine Working Group, 1992), and more recently in psychiatry, clinical psychology, and social work (Addis, 2002; Drake et al., 2001; Gambrill, 1999; Gibbs & Gambrill, 2002). It has come to signify reaffirmation of a profession’s commitment to a scientific knowledge base in general, and more specifically, an expectation that practice decisions be based on evidence from scientific research. The emphasis on EBP was fueled, to a large extent, by a growing realization that practitioners do not routinely use the best available evidence for their practice decisions. But even in medicine, where scientific tradition and reliance on the products of research are much more firmly rooted than in social work, the advocated transition to evidence-based medicine is not without its challenges and entails profession-wide readjustments (Tanenbaum, 1999).

Advocacy for EBP has had few tangible results in social work. Despite the growing recognition of EBP’s appropriateness, I am not aware of a practice effort in which EBP was systematically implemented and evaluated. Also, findings from studies of practitioners’ use of research in practice have been disappointing (Rosen, 1994; Rosen, Proctor, Morrow-Howell, & Staudt, 1995). I believe that factors inherent in practitioners and in the practice situation render much of EBP incompatible with its routine application in practice. Such incompatibility has rarely been recognized or addressed constructively (Rosen, 1983, 1996). Instead, researchers have tended to place the burden of utilization on practitioners (Wakefield & Kirk, 1996), thus contributing to further and unnecessary alienation between researchers and practitioners (Kagle & Cowger, 1984; Karger, 1983).

If EBP is to be implemented more generally, practitioners must be provided with tools to facilitate such implementation. To that end, after highlighting basic premises of social work that undergird EBP, I describe some of the obstacles to implementation.
of EBP and suggest procedures to attenuate their undesired influence and enhance implementation. Although the discussion to follow is primarily in the language of clinical practice, it is also relevant to social work practice in other contexts.

**BASIC PREMISES OF PROFESSIONAL SOCIAL WORK PRACTICE**

**Commitment to the Client's Best Interest**

Commitment to client's best welfare is the most basic premise of professional practice. It mandates that practitioners relentlessly pursue the client's best interests. To abide by this premise practitioners must be sensitive to cultural and individual diversity and distinguish the client's welfare from their own interests and from their culturally moderated conception of what is in the client's best interest. When working under the auspices of organizations with other objectives (for example, managed care), pursuit of clients' interests may place practitioners in conflict. It is important that actions taken to attenuate such conflict are not at the client's expense.

**Values-Guided Practice**

Values-guided practice affirms that social work's service objectives and the goals practitioners pursue with their clients derive from a set of values that, to a large extent, are also consistent with prevailing societal values (Popple, 1992). It also affirms that practitioners are committed to ethical practice, wherein practice decisions and behaviors are consistent with the profession's values and ethical principles. But in a complex and heterogeneous society such as ours, values consensus cannot be assumed and clients' best interests may diverge from prevailing values. Hence, practitioners must often navigate goal setting and decision making between the client's good and prevailing societal, cultural, and professional values (Jayaratne, Croxton, & Mattison, 2002; Loewenberg & Dolgoff, 1992).

**Goal-Directed Practice**

Goal-directed, pragmatic practice mandates that social work practitioners be goal directed and purposeful. Hence, all activities must be scrutinized and justified from a pragmatic perspective—the extent to which they further some desired objective. That objective must promote the client's well-being and interest. The premise that social work practice is goal directed and pragmatic proscribes any a priori adherence by practitioners to a particular course of action or method of intervention. Rather, pragmatic practice requires: purpose—method correspondence—selecting the method of intervention based on its appropriateness for the purpose of intervention, and "method efficacy—selecting the specific method that has been found to be most effective in accomplishing the objectives of service" (Rosen & Connaway, 1969, p. 89, italics in the original). This premise thus implies that practice activities must be evaluated for their success in accomplishing the goals they were directed toward.

**Accountability**

Accountability of social work practice is inherent in the concept of professional practice. It is first and foremost to clients; to the societal institutions that sanction professional practice; to the professional and service auspices of practice; to colleagues; and to the practitioners themselves. Accountable practice means that it adheres to the three premises outlined earlier. In relation to the premise of pragmatic practice, it must be demonstrated empirically to meet two criteria—the effectiveness and efficiency of practice. Demonstrating the effectiveness of practice requires evidence that the interventions used (that is, methods, treatments, services, or activities) are causally linked, directly or indirectly, to the attainment of the desired outcomes (that is, goals or objectives). Demonstrating efficiency requires evidence not only that practice is effective, but also that it is the most cost-effective in relation to its alternatives. Namely, demonstrating that maximal benefit is accomplished at the least cost, and that scarce treatment resources (for example, clients' and practitioners' time, money, and skills) are used to their best advantage (see also discussions by Newman, 2000; and Newman & Tejeda, 1996).

**Commitment to Scientific Standards of Evidence**

Social work has long been committed to using scientific methods in its quest for knowledge to guide practice. Notwithstanding epistemological arguments on the inappropriateness of the scientific paradigm for practice knowledge (Heinemann, 1981; Witkin, 1991), and attempts to delegitimize EBP by arguing the fallibility of evidence (Witkin & Harrison, 2001), it is nonetheless clear that some kind of empirical evidence underlies every practice decision. As aptly stated by Berlin and Marsh (1993), "Empiricism is nothing more than using a set of rules for gathering and analyzing data so that the results are relatively unambiguous" (p. 15). Hence, to the extent available and appropriate, social work practice should be guided by systematically collected and tested evidence.
The implications of these premises are that social work practice must be responsive to client needs and ethical; goal directed and outcome oriented; subject to scrutiny and accountability (hence systematic and explicit); guided by scientifically tested knowledge; and evaluated for its effectiveness. Practice possessing these characteristics is not only good social work, it also encompasses the essence of EBP.

Unfortunately, much of social work practice lacks some of these characteristics, despite the profession's efforts to instill them. Practice often is not systematic, not guided by empirically tested knowledge, and not empirically evaluated (compare Cheatham, 1987; Fischer, 1993; Kirk & Penka, 1992; Richey, Blythe, & Berlin, 1987; Rosen, 1994; Rosen et al., 1995). This discouraging picture is leading social workers to renewed efforts to address the situation. Advocacy for increased volume and relevance of intervention research has intensified (Fortune, 1999; Fortune & Proctor, 2001; Fraser, 2003; Rosen, Proctor, & Staadt, 1999; Schilling, 1997), as has the search for means to enhance practitioners' critical thinking and use of research in practice decision making (Gambrill, 2000; Gibbs & Gambrill, 1999; Howard & Jenson, 1999; Rosen & Proctor, 2003).

**FACTORS IMPEDING ADHERENCE TO EVIDENCE-BASED PRACTICE**

Use of research-based knowledge in practice is influenced by complex factors that impinge on and interact to impede implementation of EBP. Such factors can be grouped into five general categories: (1) characteristics of the knowledge to be used, (2) characteristics of the practice situation and setting, (3) characteristics of the practitioner, (4) attributes of the medium through which knowledge is communicated, and (5) the social-cultural context in which utilization takes place (Rosen, 1983). Not to underestimate the complexity of the implementation phenomenon, only three factors that can impede implementation of EBP are addressed here: (1) the similarity of social work professional concerns to lay experiences and problems, (2) orientations to knowledge, and (3) the inherent dilemma in idiosyncratic application of normative generalizations. I focus on these factors for several reasons. First, these factors are related to the type of considerations, rules of approach, or preferences in practitioners' selection and use of information for clinical judgments and decision making. Second, it is likely that these factors influence practice through a relatively covert, implicit process, and hence they cannot be easily scrutinized or changed. And last, these factors have not been attended to or studied, singly or in interaction, as part of a program aimed at attenuating their impeding influences on implementation of EBP.

**Similarity of Social Work Professional Concerns to Lay Experiences**

Problems of living, social and personal, are the substance of social work's professional concerns. Similar problems are also within the realm of concern and life experience of lay people (either directly, or vicariously through family, friends, print, and electronic media), many of whom also cope with such problems as part of daily life, often quite successfully. Thus, social work practitioners may enter the profession with already established lay understandings, perceptions, and conceptions of helping for situations that are similar to those they address in a professional role. Because of that similarity, transfer of lay knowledge and skills to the professional context is likely to be effortless and done with little awareness; therefore, it is likely to compete and interfere with the learning and implementation of professionally appropriate habits of thought and skills (Reber, 1993; Rosen, 1996).

The premise that professional practice must be guided by scientific knowledge and rules of evidence is founded on the assumption of a rational model of behavior. Logic and rationality are presumed to guide professional judgment, decision making, and problem-solving processes. This assumption stands in marked contrast to the large body of evidence demonstrating that lay and professional judgment, decision making, and problem solving regularly depart from the principles of logic and rationality (Dawes, 2001; Gilovich, 1991; Lilienfeld, 2002; Reber, 1993; Smith & Dumont, 1997). In such departures people tend to use readily available coping heuristics (for example, the representativeness heuristic—assigning higher probability to events that are members of a familiar category) that, although they may provide good enough or satisfying solutions in an individual case, are nonetheless fraught with bias and error (Gigerenzer & Goldstein, 1996; Kahneman, Slovic, & Tversky, 1982; Stanovich & West, 1999). Reviewing the research literature on rationality in judgment and decision making, Shafir and LeBoeuf (2002) stated that people use "intuitive strategies and simple heuristics that are reasonably effective some of the time but that also produce biases and lead to systematic error" (p. 493).

Extending these conclusions to psychologists, Lilienfeld (2002) observed that "to be effective scientists and rational consumers of scientific data,
people must be able to cast aside their intuitions and convictions regarding the relations among variables when the data compel them to do so" (p. 186). Like psychologists, social workers are vulnerable to uncritical transfer of lay habits to professional situations. Indeed, such transfer was evidenced in social workers use of intuition over research-based knowledge for practice decisions (Rosen, 1994; Zeira & Rosen, 2000), in using authority or the self as rationale for decisions (Gambrill, 1999; Rosen, 1994; Rosen et al., 1995), and in a confirmatory bias when testing clinical hypotheses (Osmo & Rosen, 2002).

Appropriate implementation of EBP can be enhanced by helping social workers curb the uncritical transfer of lay knowledge and cognitive habits to professional tasks. To the extent that similarity between lay and professional helping situations mediates uncritical transfer of inappropriate knowledge and heuristics, emphasizing the distinctness between lay and professional roles, as well as underscoring the different responsibilities attendant on these roles, might help attenuate such uncritical transfer. Also, because lay habits are relatively well entrenched and are enacted naturally and with ease, devising means for curbing practitioners' natural tendencies and constraining them to follow a rational and explicit problem-solving process should be considered (Rosen, 1993, 1996).

**Orientations to Knowledge**

An important element of social work's history in the second half of the 20th century was its call for developing a scientific knowledge base, for evaluation of practice, and attempts to integrate research methods and findings into practice (Bloom, 1975; Bloom & Fischer, 1982; Briar, 1980; Fischer, 1981; Kadushin, 1959). But social work's choice to base its practice knowledge on the scientific paradigm was often criticized as representing, to varying degrees, co-option by the "military-industrial complex," compromising its commitment to pursuit of justice and human dignity, and being misguided and unduly influenced by the traditional scientific-professional establishment (Karger, 1983). Pursuing values-directed intervention and social action, social workers are particularly attuned to prevailing zeitgeists in society, where there has been growing criticism of and disaffection with established social institutions, and many of society's ills were attributed to the ascendency of morés of science-bred technology.

In the social sciences, and subsequently in social work, prevailing orientations to science and knowledge were challenged as being mechanistic, dehumanizing, disempowering, antifeminist, and generally insensitive to personal and cultural diversity. In social work, logical positivism and its kindred epistemological derivatives were challenged as inappropriate models for research and knowledge generation generally and in direct practice in particular (compare Davis, 1985; Gergen, 1985; Heineman, 1981; Karger, 1983; Kondrat, 1992; Peile, 1988; Rodwell, 1998; Witkin, 1991). The discrediting of the traditional scientific approach and methodologies—as positivist, deterministic, or quantitative—was perhaps exemplified by Tyson (1995) who, as part of advocating a "heuristic paradigm" of research, implied that social work's alleged use of positivist research methods was tantamount to social work's relinquishing its values of social justice: "Approaches to research in the field of social work have been profoundly influenced by the sociohistorical contexts in which they have been generated, and they have served political values. Those political values have aimed either to advance social justice or to discourage social reform; over time, approaches to social work research oscillated between the two" (p. 97).

These and other criticisms that challenge the appropriateness of the scientific research paradigm for production of knowledge relevant to social work practice did not go unheeded, especially because they were often argued within persuasive philosophical frameworks. On the practitioner level these criticisms are usually accompanied with extolling the intuitive, unplanned, and spontaneous in practice, thereby appealing to and reinforcing practitioners' use of their natural heuristics. The delegitimization of the scientific paradigm as appropriate for researching and deriving knowledge for practice and the sanctioning of lay judgment and decision strategies for use in practice constitute a potent obstacle to practitioners' acceptance and implementation of EBP.

**Idiographic Application of Empirical Generalizations**

The essence of the dilemma of idiographic application of empirical generalizations is that empirically derived professional knowledge, be it descriptive, explanatory, or control oriented (how to influence human behavior, compare Rosen, 1978; Rosen et al., 1999), is knowledge fraught with uncertainty, even when obtained through optimal research designs. This uncertainty is related to the probabilistic nature of all scientific inferences and conclusions, which, although they may reduce the uncertainty in a given phenomenon, seldom if ever account for all of its variability. Another source of
uncertainty relates to the fact that research-based generalizations are always of circumscribed validity, relating to the populations and samples (that is, individuals, behaviors, or situations) that were actually studied. These factors are inherent to all research-based knowledge and rightly affect and qualify the extent to which empirical generalizations can be applicable to a particular client or circumstance (Rosen, 1983, 1996).

Therefore, expecting practitioners to apply empirical generalizations ideographically presents them with a fundamental dilemma that characterizes all science-based helping professions—applying probabilistic (that is, uncertain) generalizations to individuals and situations that practitioners know (or assume) do not correspond fully to the circumstances from which these generalizations were derived. In addition, using uncertain knowledge for practice decisions means that, once action is taken, it already departs from, and is no longer commensurate with, the uncertainty of the knowledge underlying the decision. For once a decision to act (or not to act) is made, it is of a categorical, all-or-none nature—you either act (for example, use intervention X, the effectiveness of which was supported empirically), or you decide to withhold action (not use intervention X). Whatever the decision, it is categorical and no longer mirrors accurately the probabilistic and uncertain nature of that knowledge on which it was based (compare Tanenbaum, 1999).

Facing such dilemmas without effective tools for coping is the current lot of most practitioners who attempt to use empirically based interventions despite the discomfort that such practice may engender. As suggested in the preceding section, practitioners may cope with this dilemma by avoidance—not using research-based knowledge altogether. They can in turn legitimize such avoidance by aligning with the conceptions of practice that eschew and justify rejection of the empirical tenets of EBP. Ideological decisions that are consistent with a scientific epistemology do not require equivocation—such decisions are based on categorical principles that are universally applicable by their very nature; hence their use as bases for practice decisions avoids this basic dilemma (Rosen, 1994).

That social work practitioners primarily make practice decisions on other than research-based considerations is underscored by results from two studies that investigated practitioners' rationales for such decisions (Rosen, 1994; Rosen et al., 1995). Both studies used systematic planned practice (SPP) procedures to structure practice and help practitioners explicate ongoing intervention decisions and their rationale (Rosen, 1992, 1993). Pooling the results (which were similar in both studies) of over 1,000 different intervention decisions, practitioners were able to explicate and give their reasons for only 62.7 percent. The fact that no explicit reason could be offered for more than one-third of their most important decisions—choice of interventions—suggests a covert or an intuitive decision process. And of the reasons practitioners gave, less than 2 percent of the rationales alluded, remotely, to a research base. Other reasons invoked theory or policy, and many were values-related categorical assertions of the self-evident and inherent correctness of the decision.

ADDRESSING THE CHALLENGE

Acknowledging that the relative contribution of the three factors discussed earlier to the utilization equation is yet to be studied, the remainder of the discussion focuses on applying to individual clients generalized, empirically supported interventions—a serious dilemma for practitioners trying to engage in a scientific, evidence-based helping process. It is likely that means for coping with this dilemma also may attenuate the effects of the other two impediments to EBP that were addressed earlier.

It is clear that merely researching and disseminating empirically supported interventions does not necessarily lead to their use in practice (Addis, 2002; Proctor & Rosen, 2003b). Burdening practitioners with such expectation is not only unfair, but also unrealistic (Addis & Krasnow, 2000; Mullen & Bacon, 2003). In addition to effective dissemination of relevant empirically supported interventions, four elements are necessary—albeit not sufficient—for practitioners to better use and apply such knowledge in practice:

1. Treatment must be approached as an explicit, systematic, and rational problem-solving process.
2. Practitioner-friendly tools are needed to help locate and retrieve the best empirically supported interventions relevant for the outcomes pursued.
3. The appropriateness of applying an empirically supported intervention to a particular client and practice situation must be critically weighed and, if necessary, the intervention should be supplemented, modified, or supplemented for best fit, based on practitioner's practice wisdom and local knowledge (Stricker & Trierweiler, 1995; Zeira & Rosen, 2000).
4. When implementing an intervention, practitioners must engage in an ongoing recursive evaluation of outcome attainment, further adjusting the intervention based on evaluative feedback.

Practicing in a manner consistent with these four elements is the essence of EBP. EBP can be enhanced by drawing on three complementary streams of work: systematic planned practice (SPP), single-system designs (SSD), and practice guidelines for intervention (PGIs). PGIs possessing the characteristics detailed by Proctor and Rosen (2003a; see also Rosen, Proctor, & Stautd, 2003) are important tools for implementing EBP. (The primary features of SPP and SSD that relate to proper use of PGI are depicted in Figure 1.)

**Systematic Planned Practice**

Many of the impediments to implementation of EBP were traced to the uncritical transfer of lay judgment and decision strategies to professional tasks and the consequent failure by practitioners to follow a disciplined, rational decision-making and problem-solving process. But alongside the volume of research pointing to the prevalence of biased heuristics and nonrational judgment processes (Dawes, 2001; Gilovitz, 1991; Gigerenzer & Goldstein, 1996, Lilienfeld, 2002; Shafir & LeBoeuf, 2002), there is evidence for a “dual process rationality.” The dual process rationality perspective posits two coexisting systems—one being experiential, associative, intuitive, and influenced by emotion (and hence subject to errors of heuristics and biases, as in “lay” functioning); and the other being deliberate, logical, rule-based, and reason oriented (Epstein, 1994; Slonman, 1996). The expected mode of functioning of practitioners in science-based professions corresponds to the latter system (see also Lilienfeld) and is critical for appropriate implementation of EBP. Commenting on this bifurcation, Shafir and LeBoeuf noted: “This coexistence of fallible intuitions with an underlying appreciation for normative judgment yields a subtle picture of probabilistic reasoning, along with interesting possibilities for a prescriptive approach” (p. 495). For example, such prescription characterized Smith and Dumont’s (1997)

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**FIGURE 1—Features of Systematic Planned Practice and Single System Designs Relating to Use of Practice Guidelines for Intervention**

- **SPP Features**
  - A systematic, planned process of explicit, interrelated, rational decisions about:
    1. Problems—assessed, formulated, prioritized
    2. Outcomes—ordered, specified
    3. Interventions—ordered, specified, enacted
    4. Evaluation—outcome, measurement’s 4 Ws (whose, what, when, where)

- **SSD Features**
  1. Principles and techniques of measurement
  2. Assessment of outcome attainment (design)
  3. Clinical and statistical significance

- **PGI Features**
  1. Taxonomy of outcome targets of treatment for access to and retrieval of relevant interventions
  2. Outcome-related arrays of alternative, empirically tested interventions
  3. Specification of effectiveness-modernative conditions for selection of best client-fitting, empirically supported intervention from an array
  4. A guiding algorithm for client-focused implementation—including evaluation feedback and recursive adaptation of intervention
procedures for mitigating clinicians’ overconfidence bias in diagnosis.

Consistent with the view that rational decision making of practitioners can be enhanced prescriptively, SPP is such an approach. The SPP conception frames practice as a planned process of explicitly interrelated, organized, and rational decisions and steps. It structures the treatment process accordingly and constrains and guides practitioners to engage in deliberate, explicit, and reasoned decision making in relation to each component of treatment (Rosen, 1992, 1993; Rosen, Proctor, Morrow-Howell, Auslander, & Staudt, 1993). SPP is content-free with respect to theories of human behavior and behavior change and hence is applicable with a variety of theoretical orientations.

The first phase of SPP-guided practice concerns problem formulation, assessment, setting of treatment priorities, and deciding on the treatment goals to pursue. In these tasks SPP guides practitioners to detail their judgments and provide a rationale for their decisions. The second phase of SPP guides the formulation of a treatment master plan that “aims to project, as far ahead as possible, the process involved in the attainment of ultimate outcomes” (Rosen, Proctor, & Livne, 1985, p. 171). It constrains practitioners to specify and provide a rationale for the intermediate outcomes they need to attain as they pursue the outcomes targeted in the first phase, and to specify the interventions selected to attain them and the supporting rationale for these decisions (Rosen, 1992). The master plan, as is true of all of treatment decisions, is subject to modifications in response to reconsideration and to new case-relevant information.

After formulating the master plan, SPP guides practitioners through a sequence of limited-range plans for different segments of treatment (for example, phases, sessions, weeks). Limited-range planning commences with specifying the outcomes to be attained during the segment in question, specifying the interventions to be used (from the master plan or as relevant), and providing justifying rationales. Practitioners are then guided to evaluate outcome attainment in relation to the interventions that were used—acknowledging and detailing changes from planned to implemented interventions—and to draw implications for further treatment (see Rosen, 1992 for details and examples).

**Single-System Design and Evaluation**

The basic principles, rationale, and procedures of SSD have been amply elucidated in the social work literature (Bloom, Fischer, & Orme, 1999). SSD is used here as a general model for evaluation of the outcomes of treatment rather than its specifics of research designs. The most inherently persuasive rationale for the necessity of an evaluation model is that uncertainty regarding the effectiveness of any intervention for attaining any outcome pervades all practice situations, regardless of the extent and quality of available empirical support. Hence, SSD should regularly accompany and be integrated in all responsible practice. The following features of SSD are particularly germane to this discussion.

- All outcomes pursued by intervention need to be defined operationally and assessed as specifically as possible by clinically significant indicators.
- To the extent available, clinically relevant standardized outcome measures of acceptable reliability and validity should be used (Fischer & Corcoran, 1994).
- Although some outcomes may be categorical (for example, obtaining housing, avoiding pregnancy, or finding employment) attainment of many of the outcomes pursued in treatment can be appropriately measured on higher-order continuous scales. That allows for a more discriminating evaluation of extent of outcome attainment over points in time—as in comparisons of treatment with pretreatment status (A-B designs), progress during and maintenance of change after treatment (B-A designs), and other comparisons of interest.
- The use of feedback from evaluation to assess the potency of the intervention in the given treatment informs whether the intervention selected as best suited for the outcome with that particular client met the expectation, or perhaps needs to be altered or replaced by another intervention.

**Practice Guidelines for Intervention**

SPP provides practitioners with a structured framework that facilitates explicit, critical, and rational decision making throughout the phases of treatment. The concepts and procedures of SSD and evaluation contribute to a treatment-outcome focus and facilitate a deliberate, yet flexible implementation of interventions, informed by ongoing feedback from evaluation of outcome attainment. These are critically important elements for evidence-based practice, but they are not sufficient. Both elements address the cognitive stance for and the form of practice, but they are nonsubstantive and remain mute.
with respect to choice of the purportedly effective interventions for pursuit of the desired outcomes of treatment.

The conception of PGIs that we advanced complements SPP and SSD by providing the necessary structure for organizing substantive, empirically supported interventions and for guiding practitioners in their selection and use (Proctor & Rosen, 2003a; Rosen et al., 2003). This conception advocates that PGIs in social work be relatively comprehensive, encompassing a range of professionally sought outcomes in general or within designated areas of practice (for example, child welfare), and thus PGIs would contain much of the content and procedures necessary to guide a practitioner’s intervention. This conception assumes an electronic system for retrieval and presentation of information and structured prompts for making explicit judgments and decisions. PGIs consist of four components that, together, provide practitioners with the necessary substantive and procedural support to find, select, modify, and judiciously implement empirically supported interventions to suit the needs of a particular client (for fuller exposition see Proctor & Rosen, 2003a). Briefly described, these components are

**Taxonomy of Outcome Targets of Intervention.**
A taxonomy of outcome targets of intervention serves as an organizing index to the content of the guidelines and facilitates practitioners’ retrieval of empirically supported interventions relevant to the outcomes that are targeted. Outcomes are classified in terms of general outcome domains, and within each domain, in terms of more specific outcome categories. I chose to key the PGIs according to classifications of the outcomes targeted, rather than by the more commonly used classifications of problems or diagnoses for two primary reasons: (1) The outcomes pursued in treatment are often different from or additional to seeking to reverse or attenuate presented problems, and hence an outcome-based index is more inclusive of practitioners’ intervention objectives (Proctor, Rosen, & Rhee, 2002). (2) Because interventions must be selected for their effectiveness in attaining given outcomes, concepts describing outcomes are the most direct and least mediated terms for an index to guide selection of interventions. In studies of outcomes pursued in practice we derived a taxonomy consisting of eight target domains, which were further detailed into 40 outcome categories (Proctor et al., 2002; Rosen et al., 2003).

**Arrays of Alternative Interventions.** The second component of PGIs links each outcome category within the target domains to an array of empirically tested and supported interventions and more complex intervention programs that were tested and found efficacious for attaining the outcome in question (compare Chambless & Hollon, 1998). The practitioner retrieves the array of alternative interventions corresponding to the outcome being pursued and then progresses to the third component of PGI.

**Selecting the Best Intervention for Client Needs and Circumstances.** The extent to which any of the interventions in the array are suitable for application to an individual client is dependent on the relevance and similarity of the client and the practice situation to the conditions under which the intervention was tested and supported. Information regarding the variables (clients’, practitioners’, and practice situation) that moderate the effectiveness of the interventions in the array for the outcome pursued is presented in this component. Relying on their assessment and understanding of the client, the practitioner needs to evaluate and select the intervention that was best supported under circumstances approximating the treatment in question. In view of the dilemma of applying empirical generalizations to an individual, it is important for the practitioner to realize that because the intervention chosen may still not fit their client’s needs optimally, it should be viewed only as the best empirically supported approximation to the optimal.

**Implementation in the Face of Uncertainty—Toward an Algorithm.** The first three components of PGIs facilitate practitioners’ access to, retrieval, and critical selection of the best fitting empirically supported intervention. Yet, because that intervention may still not fit satisfactorily the needs of a particular client, the fourth component of PGIs attempts to help practitioners achieve a better fit through a judicious implementation of the intervention. Entering this component with the selected intervention, practitioners are presented with a brief summary of the conditions under which its effectiveness, in relation to the outcome pursued, was tested and the extent of its differential supports. Practitioners are then guided through a deliberate process (modeled after SPP) wherein they weigh—using theory, practice wisdom, and service considerations—the merit of applying the intervention to their client in its original form or altering it for best outcome. The intervention decided on therefore may be a composite integrating what practitioners think are the best applicable features of the tested intervention with their local knowledge (Stricker & Trierweiler, 1995). Implementation of the intervention and obtaining
recursive feedback from evaluation is then guided by SPP's limited range plan (Rosen, 1992), complemented with the relevant SSD evaluation procedures. Ongoing feedback from evaluation has been found to significantly enhance outcome attainment (Lambert, Hansen, & Finch, 2001). It informs necessary adjustments of the intervention and helps practitioners deal constructively with the uncertainty of and their likely discomfort in applying empirical generalizations to individual clients. This recursive implementation—evaluation process is particularly necessary in instances where the empirically supported intervention was modified to fit a client's needs, because such modification of the tested version might also inadvertently and adversely affect the extent of the intervention's effectiveness.

The systematic implementation process outlined here can also have benefits beyond those of the immediate clients being served. As suggested by Proctor and Rosen (2003a) such process can encourage practitioners to innovate, using local knowledge and practice wisdom to formulate clinical hypotheses. And if augmented with means for centrally cumulating and communicating the results of these efforts (as through a practice research network), it can subsequently lead to broader testing of the practice-derived clinical hypotheses (Stiles et al., 2003).

CONCLUSION

Evidence-based practice will undoubtedly continue to develop and evolve in response to increasing demand for effective and accountable practice. A number of the obstacles to practitioners' adoption and implementation of EBP were outlined here, and some means for their attenuation suggested. As intervention research focuses better on the populations and outcomes that are pertinent to social work (Proctor & Rosen, 2003b; Rosen et al., 2003), as studies increase in volume and are better designed (Fraser, 2003), so will the repertoire of interventions available to practitioners be enriched. Yet, even under the best foreseeable circumstances, practitioners need procedures for coping with the dilemma of applying empirical generalizations to an individual client.

The conception of PGI outlined here, and particularly its integration of concepts from SPP and SSD, may constitute a promising beginning and direction for further development of a practitioner-friendly algorithm for responsible implementation of empirically supported interventions, augmented as necessary with practitioner's knowledge and case-specific considerations. Practicing with the aid of PGIs containing such an algorithm would not only require practitioners' theoretical and technical competence, it would also call forth and use their best clinical judgment, creativity, and innovative ability—qualities that have been claimed by detractors of EBP to be underutilized in empirically guided practice.

The analyses of challenges to regular implementation of EBPs and the means to address these challenges discussed here point to needed research and have implications for educating for the profession. The concept of PGI presented in this article encompasses most of practitioners' decisions and activities required for implementation of EBP. Hence, the research necessary to develop such PGIs addresses also much of the research required for enhancing EBP. That research was recently discussed in detail as part of an agenda for developing PGIs in social work (Proctor & Rosen, 2003b). An even more intensive effort should be devoted to further development of the interactive algorithm described earlier, helping practitioners to reconcile the application to individual clients of research-based interventions. Such an algorithm of implementation is particularly necessary given social work's lag in programmatic intervention research for its diverse client groups and practice settings (Rosen et al., 2003). This lag leaves a potentially wider gap in the fit of empirically supported interventions to the characteristics and needs of particular clients and treatment situations.

It is clear that if EBP is to become the predominant mode in social work practice, professional education should be the initial if not primary venue of its inculcation. And indeed, recent writings have taken that position, suggesting moreover that it entails a new paradigm for social work education (Howard, McMillan, & Pollio, 2003). Howard and colleagues described a number of curricular features for teaching and organizing the substantive content required for and enabling of EBP, most of which are consistent with the analyses in this paper. I therefore conclude by underscoring implications for professional education that are unique to and are directly implied by the present discussion.

The similarity between practitioners' lay experiences and problems dealt with professionally gives rise to a potentially potent obstacle to implementation of EBP—the transfer of lay habits of thought and heuristics to professional decision making. Social work education must try to attenuate such an uncrITICAL transfer through a deliberate emphasis on induction into the professional role. A major component of such induction should be the invidious contrasting of lay judgment and decision-making habits.
with those required in a professional role, augmented with emphasis on the profession’s commitment to rational, explicit, and systematic decision processes that are guided by evidentiary criteria. Another component meriting emphasis in selected areas of the curriculum is discussion of knowledge as a professional and a scientific concept. Distinctions need to be drawn between the different functions of knowledge in a profession, with particular attention to the critical role of control (that is, influence or change) oriented knowledge to a professional practitioner (Rosen, 1996; Rosen et al., 1999). Last, students must be educated systematically throughout the curriculum in the issues, challenges, and available aids for making decisions and undertaking action under conditions of uncertainty. That content should underlie and support the teaching of methods of intervention and provide persuasive rationale for integrating the teaching of treatment evaluation with the teaching of interventions in the classroom and in the field.

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