

Leverage Points for the Implementation of Evidence-Based Practice

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Adoption of evidence-based practice (EBP) is an increasingly advocated yet formidable challenge. Much work on EBP has implied simplistic solutions: if researchers would produce practice-relevant evidence-based approaches, practitioners would find, adopt, and use them. Blaming researchers for problems in supply, and practitioners for resistance in adoption, will only thwart progress at improving the quality of service. The dissemination and implementation of evidence-based practice requires a more discerning analysis of issues in agency, research, and professional cultures. Drawing on literatures on knowledge diffusion, innovation, and quality improvement, this paper proposes a conceptual framework for the multiple tasks, participants, and leverage points required for the adoption of EBP. Evidence-based practice requires attainment of four intermediate outcomes—access, adoption, implementation, and assessment—each with distinct interventions required for attainment. The framework reveals action points and leverage points for researchers, agency administrators, educators, and individual practitioners. Implementation of EBP requires supportive research, training, and organizational infrastructures. [*Brief Treatment and Crisis Intervention* 4:227–242 (2004)]

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The health, mental health, and social service professions now face unprecedented demands that frontline service providers make their treatment decisions on the basis of research findings or scientific evidence. Clyman (2000,

p. 167) characterizes the shift toward increased accountability in the human services as perhaps “the largest scale social experimentation since the New Deal in the United States.”

Yet the gap between the availability and actual use of evidence-based treatments remains wide and persistent (Gonzales, Ringeisen, & Chambers, 2002). This gap compromises the quality of care and threatens professionals’ abilities to achieve their goals of reducing disparities in health, family well-being, and individual functioning in society. Failure to use research-based knowledge may prove costly

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and harmful, leading to overuse of unhelpful care, underuse of effective care, and errors in execution (Berwick, 2003).

Much of the discussion of evidence-based practice (EBP) in behavioral health and social work implies simplistic solutions: if researchers would produce practice-relevant evidence-based approaches, practitioners would adopt and use them. But blaming researchers for problems in supply, and practitioners for resistance in adoption, may only thwart progress at improving the quality of service. The lessons of medicine, a field that has made concerted efforts to implement clinical guidelines and evidence-based treatments, make clear that research dissemination does not ensure implementation. The next frontier in advancing the quality of care in the fields of behavioral health and social service is developing an understanding of how to disseminate and implement evidence-based practices so that they are indeed used and made available to clients.

Conceptual Framework for Implementation of EBP

This paper provides a conceptual framework for the multiple stages, tasks, and participants required for the implementation of EBP. Evidence-based practice is conceptualized as an innovation whose adoption and implementation consists of multiple, conceptually distinct outcomes. Their attainment requires systematic, targeted efforts by many players, at multiple levels of influence. Drawing on literatures about knowledge diffusion, innovation, and quality improvement, the paper identifies leverage points for change or otherwise promising interventions for the implementation of EBP. While most discussion has focused only on clinician-level factors, the paper addresses additional influences on EBP

implementation in professional training, in the professions' research infrastructure, and in the organizational culture of behavioral health and social service agencies.

Intermediate Outcomes in EBP

Evidence-based practice requires attainment of multiple, component intermediate outcomes. Intermediate outcomes are those whose attainment is necessary but not sufficient for attaining subsequent outcomes (Rosen & Proctor, 1978). Most literature discusses outcomes in client behavior as a function of interventions delivered by a clinician. Because evidence-based practice requires, among other things, change in the behavior of the clinician, this discussion addresses outcomes in terms of provider behavior. As depicted in Figure 1, evidence-based practice involves four intermediate outcomes:

1. identification and access of relevant and appropriate evidence-based practices,
2. acceptance of the evidence and a decision to adopt EBPs,
3. implementation of EBPs, and
4. evaluation of their usefulness.

The arrows between outcomes signal that each outcome contributes to the attainment of others, hence forming intermediate outcomes. For example, accessing EBPs and accepting or adopting them for use are necessary but not sufficient for attaining two subsequent outcomes: the actual implementation and the evaluation of each EBP's appropriateness and effectiveness. In turn, the evaluation of EBP will influence subsequent decisions to adopt, as well as the manner in which EBP is implemented in future situations; therefore, it may be viewed as an intermediate outcome in relation to future use of EBP. Disentangling the tasks of practicing on the basis of evidence is useful, in

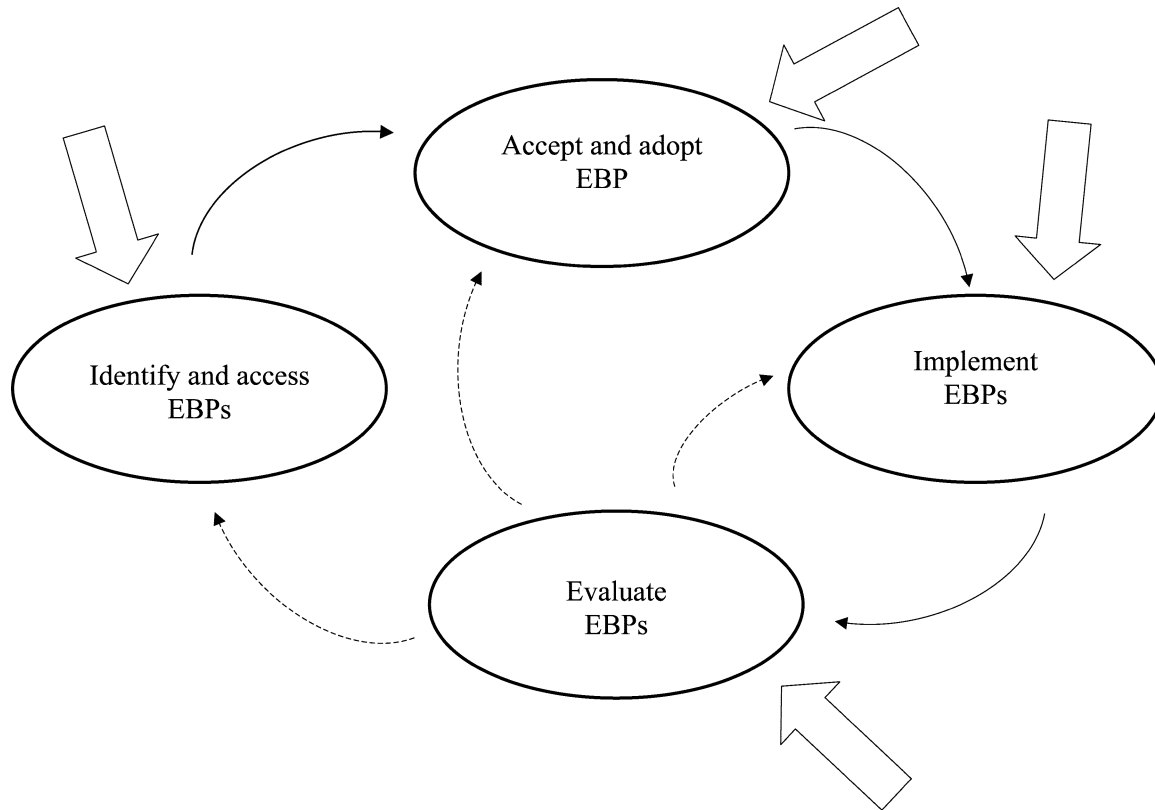


FIGURE 1
 Provider Intermediate Outcomes Required for Evidence-Based Practice. *Note:* Hollow arrows denote interventions required to attain outcomes.

that the component outcomes become less complex and thus may be viewed as more attainable. Moreover, identifying the distinct and specific EBP intermediate outcomes is critical for selecting and employing interventions for their attainment.

Interventions Are Required to Attain EBP Outcomes

Evidence-based practice, whether conceptualized globally as one objective or as component and sequential outcomes (as proposed here), will not be achieved through mere admonition. Each of the intermediate outcomes should be viewed as a target for change through deliberate pursuit and use of specific interventions. As noted, the outcomes discussed here

reference provider behavior. Many types of interventions are needed to attain these provider outcomes. The practice context and infrastructure—that is, the aspects of professional training, research, agency culture, record keeping, and supervision practices—yield a variety of leverage points for increasing the implementation of evidence-based practice. Indeed EBPs will likely not be sustained without their concerted and purposive use. Table 1 summarizes some potential interventions for attaining the requisite intermediate outcomes.

Useful Theories and Literature

Several bodies of literature are useful in analyzing the challenge of implementing

TABLE 1. Leverage Points for Evidence-Based Practice: Potential Interventions in the Practice Infrastructure for Attaining Intermediate Outcomes

Intermediate Outcomes	Practice Infrastructure		
	Research	Training	Organizational Culture
Identify and access EBP	Production of EBPs User-friendly packaging of evidence (practice guidelines, consensus statements, review articles) Dissemination competence	Evidence-based professional curricula	Electronic or on-site materials Evidence-informed supervisors Interpersonal linkages to research
Accept and adopt EBP	Benefits are clear (effect size) Evidentiary support for interventions is clear EBP's are clearly and simply described	Training in systematic decision making EBP linked to professional values and norms	Problems in care are scrutinized Administration supports, or exerts pressure, for adopting new treatments or relying on evidence Decision support resources for relying on evidence
Implement EBP	Detail interventions in published studies and guidelines Disseminate treatment manuals	Training addresses specific skills required to implement EBPs	Agency leaders' commitment Supervisor commitment, knowledge, and support Focused training Secure training manuals Normalize customization of EBPs Incentives and rewards Specialty models of service delivery Prompts and reminders
Evaluate EBP	Feedback loops established with practice	Training in outcome evaluation	Demand for evaluation Technical support for evaluation Incorporation of evaluation into subsequent adoption decisions

evidence-based practice and identifying potential leverage points for change. First, given how rarely practitioners rely on research to guide their practice (Rosen, Proctor, Morrow-Howell, & Staudt, 1995), EBP can be viewed as an innovation. For over 40 years, Everett M. Rogers has advanced an understanding of the diffusion of innovation, drawing on research and theory from fields as diverse as agriculture, space-related research, medicine, technology, and education. Rogers draws on Bandura's

social learning theory (1986) and addresses cognitive, environmental, and behavioral variables to help explain human behavior. Studies of innovation diffusion have sought

1. to identify types of organizations, communities, and individuals that do or do not adopt a particular innovation, and factors that have an impact on adoption or nonadoption of innovation (Schoenwald & Hoagwood, 2001);

2. to observe whether innovation was adopted as originally designed or was adapted; and
3. to examine whether an innovative practice was sustained over time and what factors influence sustainability.

To address medical and social service innovations (Martin, Herie, Turner, & Cunningham, 1998) as well as organizational innovation adoption (Frambach & Schillewaert, 1999; Klein & Sorra, 1996), social marketing and management literatures further apply Rogers's concepts (1995) of innovation adoption and diffusion—that is, respectively, the making use of an innovation and the innovation's accumulated level of users within a given market. Most research on diffusion of innovation are case study and naturalistic; few studies are experimental and prospective. Nonetheless, this literature's broad principles can help us understand the intermediate outcomes involved in EBP implementation, suggest leverage points to facilitate their attainment, and yield hypotheses for research on EBP implementation.

Second, EBP should be understood as a knowledge utilization challenge (Huberman, 1994) within the context of professional decision making. Accordingly, literature on research dissemination from other fields, including medicine, and the decision-making literature are useful in formulating strategies for EBP implementation.

Third, as borrowed from industry's total quality management (TQM) and as currently applied in health care, the quality improvement (QI) literature is quite helpful. However, this literature tends to yield change concepts as good ideas but not as specific strategies ready for implementation (Plsek, 1999).

Fourth, the literature on stages of change is useful in understanding that EBP implementation requires multiple, sequential outcomes.

The transtheoretical model of change proposed by Prochaska and Di Clemente (1983) describes change as a continuous process in which participants move through stages of precontemplation, contemplation, decision, active change, and maintenance. This model considerably advances simplistic assumptions about change in clinician behavior—the notion that knowledge inputs lead to immediate attitude changes, which in turn produce behavioral changes (Whitelaw, Baldwin, Bunton, & Flynn, 2000). The stages-of-change literature has been applied in the drug and alcohol field, in health promotion, and in smoking cessation and pharmaceuticals—for example, Lidstone (1987) conceptualized “stages of change” in a clinician's prescribing behavior as unawareness, awareness, interest, evaluation, trial, usage, and continued usage. The application of this popular theory suffers from several problems, including a lack of standardized measures for categorizing a clinician's stage of change or readiness of change (Chilvers, Harrison, Sipos, & Barley, 2002) and a paucity of evidence that supports the effectiveness of interventions based on stages of change, whether for clients or for clinicians (Whitelaw et al., 2000).

Intermediate Outcome: Identify and Access Evidence-Based Practices

The very process of identifying and accessing information about evidence-based practices should be recognized as a challenge, indeed as an outcome to be pursued purposefully through dissemination interventions. According to a recent survey, most psychiatrists (94.1%) and psychologists (87.5%) said they consulted the research literature to guide their decisions in treating a particular case, whereas only 64.6% of social workers said they did. However, social workers (24.5%) were more likely to report reading research literature weekly than were psychiatrists (14.3%) and

psychologists (none reported reading research weekly). Most psychiatrists (94.1%) and psychologists (81.3%) had heard about practice guidelines, but only 42.3% of social workers had heard about them. Fewer knew of a particular guideline: 87.5% of psychiatrists, 12.5% of psychologists, and 18.4% of social workers (Mullen & Bacon, in press).

Until recently, the social and behavioral science literatures have been virtually silent about effective methods of disseminating evidence-based practices. The behavioral health professions rely on traditional methods—publication of articles in journals, which few practitioners access, read, or view as helpful to their work. A blue-ribbon panel assessing the state of social work knowledge concluded that current practices of research dissemination are fragmented and inefficient in getting research-based information to practitioners (Task Force on Social Work Research, 1991). Most professional conferences, meetings, and locally available continuing-education workshops present information that is not research based. Agencies do not typically turn to journals for new information, and practitioners rarely make their practice decisions on the basis of research evidence (Rosen et al., 1995). Even agency directors, management staff, and clinical supervisors who are committed to EBP have little guidance about the best ways to advance their delivery of evidence-based service. Some have placed responsibility for accessing EBP at the feet of practitioners, expecting them to conduct extensive literature searches and critically assess the goodness of evidence (e.g., Gambrell, 2003). However, such expectations are often unrealistic, given such barriers as time constraints and lack of computer access in agencies (Proctor & Rosen, 2004). Moreover, research on health informatics and technology indicates that many search engines are inefficient tools for locating relevant information about interventions (Fukuyama & Wagner, 2000).

Leverage Points for Increasing Access to EBPS. Practitioner access to EBPs requires change—change within the research community and in practice agencies (Weisz, Donenberg, Han, & Weiss, 1995). The literatures reviewed suggest several leverage points for enabling easier access to information about evidence-based practices.

First, the research community needs to develop and utilize greater “dissemination competence” (Huberman, 1994). The clarity of research reports is an important starting place. While policymakers, agency administrators, supervisors, and practitioners should not be underestimated, their need for concise and clear information should be respected (Soriano & Baugh, 2002). Thus, Roos and Shapiro (1999) recommend that researchers provide condensed versions that clearly communicate research results, with full, completely annotated and detailed reports. The research community should also work to develop consensus statements. Individual studies often lead to conclusions very different from that of a systematic review of a body of studies; “ideas,” more so than discrete data, are more likely to have influence (Lavis, Robertson, Woodside, McLeod, & Abelson, 2003). Researchers can increase the accessibility of evidence by writing review articles and summary conclusions from a body of research. Researchers also need to make explicit the recommendations for practice that derive from research (Innvaer, Vist, Trommald, & Oxman, 2002). Practice guidelines offer advantages to enabling access to evidence and to providing clear recommendations for action (Rosen & Proctor, 2003). Treatment manuals, tailored to a particular practice setting or context, are at the “lower end of the complexity continuum” of research information (Simpson, 2002) and thus may be more accessible. They often enable providers to understand the rationale and specific implementation steps required for a given treatment.

Yet manuals and guidelines need to be user-friendly, rather than steeped in academic jargon (Corrigan, Steiner, McCracken, Blaser, & Barr, 2001). Finally, research reports need to be explicit about the extent to which recommended treatments have evidentiary support. Established knowledge must be distinguished from reasonable hypotheses and unwarranted or irresponsible assertions made in the name of science (Shonkoff, 2000). Unfortunately, interventions in behavioral health and social services often have a thin or tentative evidentiary base (Rosenheck, 2001), which undermines their legitimacy. Schoenwald and Hoagwood (2001) caution that "premature" dissemination of treatments can "poison the waters" not only for the treatment in question but for the use of any empirically validated treatment. Finally, more research needs to be conducted to yield systematic, evidence-based approaches to information dissemination.

Access to EBPs can also be facilitated by changes in service agencies and treatment settings. Agencies must work to make EBPs accessible (Backer, 1993) to frontline practitioners, whether through subscriptions to journals and newsletters, Internet access to literature searches or guideline collections (e.g., <http://www.guideline.gov>), or in-service training. Cohen, Sargent, and Sechrest's study (1986) of psychologists' use of research revealed that the most useful source of research was case discussion with colleagues. Professional practice, particularly social work practice, has traditionally relied heavily on supervision (Mullen & Bacon, 2003). Thus, agencies need to ensure that clinical supervisors are informed about, and can facilitate practitioner access to, evidence-based practices.

Finally, active, face-to-face interchange between researchers and practitioners is critical. Research on information dissemination indicates that interpersonal links are key to research use (Huberman, 1994; Innvaer et al.,

2002). Agencies could well establish research advisory committees; and research centers, schools, or departments could appoint liaisons to agencies. Such "intermediaries" (Huberman, 1994) enable use of active dissemination methods (Schoenwald & Hoagwood, 2001), rather than passive approaches such as articles in scholarly journals. In-service training materials, workshops, and audiovisual trainee materials (Blumberg & Deveau, 1995) offer high potential for ensuring access to evidence-based practices.

Intermediate Outcome: Accept and Adopt Evidence-Based Practice

Even the most competent or effective approach to research dissemination, one that enables practitioners to access research-based practices, should not be presumed sufficient for practitioner acceptance or adoption of evidence as a basis for practice (Chilvers et al., 2002). The knowledge diffusion literature recognizes adoption as a distinct concept (Rogers, 1995), and it needs to be recognized as a distinct outcome to be attained in the quest for evidence-based practice. Rogers (1995) defines adoption as a process through which an individual or other decision-making unit passes from first knowledge of an innovation, to forming an attitude toward the innovation, to making a decision to adopt or reject the new idea.

The basic premise of evidence-based practice is that frontline service providers will rely on data or scientific evidence as the basis for their treatment decisions (Gonzales et al., 2002). Research on provider decision making suggests that most providers currently do not rely on evidence (Rosen et al., 1995) but are more influenced by such factors as lay practices (Rosen, 2003), power structures, ingrained routines, and established resource configurations (Rosenheck, 2001). Mullen and Bacon's recent survey revealed that 86.7% of psychiatrists

and 81.4% of social workers said they were inclined to use guidelines, compared to only half of psychologists (54.5%; these percentages contradict those of provider awareness of specific guidelines, as discussed earlier). Provider receptivity to empirically based treatments varies considerably within professional disciplines (Addis & Krasnow, 2000) but perhaps not between disciplines. Aarons (in press) surveyed clinical and case management service providers from 51 public-sector programs providing mental health services to children, adolescents, and families in San Diego, California. Respondents included marriage and family therapists, social workers, psychologists, and psychiatrists. Across professions, interns endorsed more positive attitudes toward the adoption of evidence-based practice than did professional providers. No significant differences were found in attitudes toward adoption of EBPs across disciplines.

The literature on diffusion of innovation distinguishes various types of decisions to adopt or reject an innovation such as EBP. This decision may be optional, in that it is made by an individual independent of decisions made by other members of the system; or the decision may be collective, in that all members of a system reach consensus and all units are expected to conform to the decision, once made. Authority-based decisions are made by a small group of relatively few individuals who possess power, status, or technical expertise; the role of an individual member is implementation, not decision making. Although authority-based decisions produce the fastest rate of adoption, they can be circumvented during implementation (Rogers, 1995).

What factors affect decisions to adopt or reject innovations? First, perception of a problem and a need for some new approach are key to eventual adoption of new approaches (Rogers, 1995). Second, the potential adopter's perceptions of the innovation play a crucial

role, predicting between 49% and 87% of variance in speed of adoption (Berwick, 2003). A new approach must be perceived as offering some benefit or relative advantage, perhaps in economic terms (Frambach & Schillewaert, 1999; Henggeler, Lee, & Burns, 2002; Rogers, 1995). In competitive markets, adoption of innovation may be perceived as necessary to maintain market position. Of course different stakeholders may draw different conclusions about relative advantage (Henggeler et al., 2002), with funders favoring innovations that are perceived to reduce costs and with providers preferring a more expensive innovation that seems easier to apply. A perceived advantage serves to reduce uncertainty about the expected consequences of doing something new, thereby increasing likelihood of adoption (Berwick, 2003). To be adopted, innovations also must be perceived as relevant. Providers are likely to evaluate the relevance of a given EBP to the needs of a particular practice situation, in terms of various features of the practitioner, client, service delivery system, and community context (Schoenwald & Hoagwood, 2001). Perceived compatibility also influences adoption; the more consistent a new approach is with important values and beliefs and with past experiences, the more likely its adoption (Henggeler et al., 2002; Rogers, 1995). Users of research information have a cognitive structure against which new information is actively tested; new information that is too strongly discrepant will be discarded or will be construed (or misconstrued) in ways that are consonant with existing thoughts (Huberman, 1994). Finally, innovations that are perceived as easy to understand and assimilate spread faster than complicated ones (Berwick, 2003). Thus EBPs are more likely to be adopted if they are perceived as offering some advantage, are relevant to a given practice situation, are congruent with salient values, and are relatively simple to understand.

Leverage Points for EBP Adoption. Practitioner acceptance and adoption of EBPs can be facilitated through the research infrastructure, through professional training, and by modifying agency culture. First, the research community can help foster acceptance of evidence-based treatment by developing and testing interventions that are highly relevant to practice—those that address problems, issues, and outcomes that agencies and practitioners care about (Proctor, Rosen, & Rhee, 2002). Conducting comparative trials and reporting effect sizes associated with specific interventions can heighten the perceived benefit of EBPs. Researchers can enhance the perceived simplicity of an intervention by describing treatment components clearly and in detail, and they can enhance the perceived compatibility of an evidence-based treatment by noting elements that are similar to widely used treatments. A study of health policymakers found that the timeliness of evidence facilitated its use (Innvaer et al., 2002), suggesting that new research findings should make their way to potential users as quickly as possible.

In the realm of professional training, instructors can make explicit the compatibility of evidence-based treatment with such professional values as accountability, quality care, and pursuit of clients' best interests. Graduate schools and continuing-education programs need to provide training in systematic decision making (Rosen, 1993) to help providers structure their consideration of treatment alternatives and rationalize their choice of particular treatments.

The organizational culture of agency practice may wield the greatest leverage for acceptance of EBP. Innovation requires a climate for change (Simpson, 2002). Innovation will be more readily adopted when program leaders and senior staff are willing to identify problems in routine practice and when they support, even "pressure," for change (Simpson, 2002);

when staff at various levels have contributed to the decision to adopt; and when the innovation is consistent with organizational culture (Henggeler et al., 2002). Frontline providers must perceive EBP initiatives as linked to legitimated organizational goals and values (Rosenheck, 2001). For EBP, key decision makers need to cultivate a "research-attuned culture" where reliance on evidence is valued and reinforced (Huberman, 1994; Lavis et al., 2003; Roos & Shapiro, 1999). Influential supervisors need to be "groomed" to promote innovation from within an agency organization (Simpson, 2002) and to be tolerant of risk (Judge, Thoresen, Pucik, & Welbourne, 1999).

Within an organization, who talks about EBP and how it is discussed are likely to affect its acceptance. Opinion leaders, those members of organizations whose influence has been earned and maintained and who are often at the center of interpersonal communication networks (Rogers, 1995), can be effective messengers for EBP. In medicine, the authoritative endorsement by a respected physician has been shown to influence physicians' adoption of practice guidelines (Hayward, Guyatt, Moore, McKibbon, & Carter, 1997). A frequent problem in the diffusion of innovation is "heterophily," or marked difference in technical competence between change agents and targets of change (Rogers, 1995); communication problems ensue when these participants can't speak the same language. The widely recognized and bemoaned language and cultural differences between researchers and practitioners may thwart acceptance of EBPs. By definition, diffusion demands some degree of heterophily around expertise with the innovation, but Rogers recommends that change agents, or in our case spokespersons for EBP, be similar to the target audience on other dimensions, in particular regarding their social status. The message of EBP might well be communicated by individuals who are competent, socially

influential, experts in EBP but who are otherwise similar to providers. Research confirms that passive dissemination processes are ineffective for adoption and that interactive engagement is most effective (Grimshaw et al., 2001; Lavis et al., 2003). Finally, training can affect acceptance; service providers who complete in-service training have improved attitudes toward practice innovation (Corrigan et al., 2001).

Intermediate Outcome: Implement EBP

The “uptake”—or actual implementation of evidence-based practices, once disseminated to (and accepted by) practitioners—is a distinct outcome to be understood, assessed, and pursued. While researchers give considerable attention to the fidelity of implementation in clinical trials, the literature on evidence-based practice rarely discusses comparable demands that evidence-based practices be implemented with fidelity in routine practice. Yet neither sustained implementation over time nor implementation with fidelity can be assumed from initial steps to implement an evidence-based practice.

The implementation of evidence-based practices requires that frontline practitioners have specific knowledge and skills—“how to” knowledge, according to Rogers (1995)—to implement specific components of treatment plans or intervention programs (Corrigan et al., 2001; Proctor and Rosen, 2003). As the complexity of an intervention or treatment program increases, so do the skills required for implementation. Yet many research studies do not adequately operationalize interventions or describe them in sufficient detail to enable their replication or implementation (Rosen, Proctor, & Staudt, 1999). Evidence-based practice should be presumed new to most behavioral health and social service providers. In a recent survey, most psychiatrists (64.3%) said they had used a practice guideline to help them

plan treatment, whereas only 6.3% of psychologists and 18.7% of social workers said they had (Mullen & Bacon, in press). Without adequate training, monitoring, and support for implementation, particularly when an EBP is new to a practitioner, rejection or discontinuation is likely.

The implementation of new ideas depends, in large part, on organizational climate. Employees perceive which practices, procedures, and behaviors a setting rewards, supports, and expects (Schneider, 1990). Members of the organization, particularly key leaders (whether by position or social influence), must evidence a commitment to using innovation (Klein & Sorra, 1996). Henggeler et al. (2002) caution that authoritarian decisions to adopt innovation, as in a CEO directive, lead to fast diffusion of the innovation; but an innovation’s sustained use is more likely when the decision to implement is collective and reached through consensus.

Leverage Points for EBP Implementation.

Although very little research has addressed strategies to support the implementation of evidence-based practice, the literature on use of innovations suggests promising leverage points. Multifaceted interventions are more likely to result in favorable change than single interventions. As with the adoption of EBP, implementation depends on organizational climate. EBP implementation presupposes that practice leaders—perhaps the agency director, the board of directors, and senior managers—have made a commitment to providing services and treatments that are evidence based (Klein & Sorra, 1996). The quality of staff leadership is also crucial (Corrigan et al., 2001): supervisors must become committed, knowledgeable, and skilled in using EBPs. Supervisors are visible and influential, and they play a crucial role in ensuring that frontline providers acquire and receive support in using the intervention skills associated with EBPs. Research confirms the

importance of face-to-face supervision, but it also suggests that supervisee and supervisor often find supervision to be insufficient in guiding practice (Kavanagh et al., 2003).

EBP implementation requires targeted training. Research on academic detailing in medicine and pharmacology (Soumerai & Avorn, 1990) suggest the effectiveness of interactive educational meetings (Chilvers et al., 2002) and face-to-face, educational-outreach visits to individual practitioners or teams of providers (Davis & Taylor-Vaisey, 1997; Oxman, Thomson, Davis, & Haynes, 1995). Training should be provided by respected “change agents” whom practitioners would perceive as expert but are otherwise similar to themselves. Agency resources, including practitioner time for attendance, must be made available for training in evidence-based practice and for securing detailed treatment manuals that provide step-by-step guidance on specific practice strategies.

Although the benefits documented in research can only be presumed when an intervention is implemented with fidelity, diffusion researchers increasingly recognize the importance of “reinvention,” or customization—in this case, the modification of EBPs in line with practitioners’ “local knowledge,” or practice wisdom (Proctor & Rosen, 2004). Adopters generally think that reinvention is a desirable quality (Rogers, 1995). To work, changes must be adopted and adapted locally (Berwick, 2003). Flexibility may reduce mistakes, enable an innovation to better fit a particular situation or circumstance, increase “local pride of ownership,” and prevent discontinuance in use (Rogers, 1995). Thus the sustained use of EBPs might be increased by supervisor trust, support, and enabling of customization (Berwick, 2003).

The use of EBPs must be recognized and rewarded, and their avoidance must be associated with disincentives. Berwick (2003) recommends that leaders who want to foster

innovation should “showcase and celebrate individuals who take ideas from elsewhere and adapt them to make them their own.” (Berwick, 2003, p. 1974). Various incentives—be they financial (promotions, pay raises), tangible (provision of resources), symbolic (certificates of accomplishment; Parcel et al., 1989), or stature (opportunities to make presentations to other staff)—may be used to reinforce the use of evidence-based practice. Training is more successful when the use of new practice skills is reinforced (Corrigan et al., 2001).

Modifications to the organization of care may be required to support EBP implementation. Clinics may need to move toward a specialist notion and away from the “generalist clinician” notion, from which cases are assigned on a “who’s up next?” basis. Agency practice can be organized into specialty subclinics, each with its team of clinicians trained to do a few things particularly well and trained to supervise others in the same specialized skills (Weisz et al., 1995, p. 699). Subunits for care also provide a context for ensuring collegial support, recognized as critical to implementing EBP (Corrigan et al., 2001).

Finally, research from medicine and pharmacology suggests that the sustained use of EBP requires reminders. Information technology plays an increasingly important role in improving the quality and efficiency of health care (Institute of Medicine, 2001). Reminders can be low-tech, such as laminated cards prominently placed on practitioner desks; or high-tech, such as pop-up menus or messages in computer-assisted assessment, decision-support systems, or evaluation systems.

Intermediate Outcome: Evaluate EBP

Once they have implemented an evidence-based treatment, practitioners will implicitly or explicitly assess its effectiveness and appropriateness; their conclusions from such assessment

will affect subsequent decisions to use EBPs. Rogers (1995) characterizes confirmation as a critical step in the diffusion of any innovation because individuals who have made a decision about an innovation seek reinforcement and view implementation of the innovation as subject to reversal. Evaluation is especially important when empirically supported treatments have been modified or adapted (Proctor & Rosen, 2004). Thus, implementation and ongoing performance of evidence-based practice must be evaluated (Rosenheck, 2001). Evaluation should address whether treatments were implemented as planned or as adapted (Schoenwald & Hoagwood, 2001) and what the effects were. Evaluation can support the routinization of EBP, or its incorporation into a practitioner's or agency's routine activities. Relatively little attention has been directed to the consequences of innovation, as most effort and attention has focused on adoption *per se* (Rogers, 1995).

Most social work and psychology clinicians are ambivalent toward outcome measurement and evaluation of practice; even those who support the goal of measuring outcomes describe it as complex and difficult (Garland, Kurse, & Aarons, 2003). Many rely more on intuition than on standardized measures to evaluate effectiveness.

Interventions for EBP Evaluation. Extensive changes are needed in agency procedures to support the routine and systematic evaluation of evidence-based practice. Most social service agencies do not require documentation of specific treatment procedures (Rozario, Morrow-Howell, & Proctor, 2002); a cultural change is required to routinize documentation and make it useful in improving the quality of care (Baker, Shanfield, & Schnee, 2000). Most clinicians feel oppressed by paper work, and paper records constitute a significant barrier to evaluation. Electronic records have proven in medical settings to improve evaluation prac-

tices, enable easier access to data, and reduce the lag time between data entry and retrieval of results. Agency resources are needed to advance the state of evaluation hardware, software, and usefulness. Agency leaders need to demand and support evaluation and secure clinician input to enhance its clinical utility (Garland et al., 2003). Most important, the results of systematic evaluation need to guide subsequent decisions about treatments to adopt and use.

Graduate programs and continuing education offerings need to offer better training in practice evaluation. Feedback loops between the research community and the practice community could help ensure that practitioners' experiences implementing and evaluating EBPs shape subsequent research in academic settings. Practitioner experience is a legitimate and valuable source of data, and it needs to shape subsequent research on the effectiveness of specific treatments (Huberman, 1994).

Conclusion

Evidence-based practice requires attainment of four intermediate outcomes—access, adoption, implementation, and assessment. Each requires distinct and concerted intervention for its attainment. Each outcome refers to the behavior of frontline practitioners, who are key to delivering evidence-based practices to clients. Yet clinician behavior cannot be expected to change without concerted efforts to leverage the infrastructure for practice—its research, training, and agency cultures. Influenced largely by the social science tradition, innovation research has focused on individuals as potential adopters, perhaps because of an assumed individual unit of response—a decision to adopt or not. Unfortunately, this contributes to an “individual-blame” bias (Rogers, 1995). An anthropological focus

incorporates system, or organizational, factors. Clinical treatment researchers have learned that getting evidence-based treatments into real-world settings requires understanding and addressing broader system- and service-level threats to transportability of treatments (Brannan, 2003). Thus, those in the businesses of knowledge production and dissemination (researchers, journal authors, and publishers), training (academic programs, workshop leaders, supervisors), and policy and management (agency CEOs, boards, funders, managers) play key roles in advancing evidence-based practice. Cultures, knowledge, and technologies must change, and the requisite resources for these changes must be supplied (Martin et al., 1998; Simpson, 2002).

Currently there is a paucity of research on how to effectively implement evidence-based practice (Chilvers et al, 2002). Fields such as marketing science, knowledge dissemination, social change, and social cognition yield promising guidance for changing research, training, and agency infrastructures to better support EBP. These approaches need to be tried and tested, to ultimately yield evidence-based approaches for implementing evidence-based practice (Groll, 1997).

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