

Implementation of Evidence-Based Interventions: Key Research Issues

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“The simple answer is there is no simple answer.”

The Challenge of Evidence-Based Implementation There is a persistent belief that evidence-based interventions in fields like mental health and substance abuse will almost automatically improve outcomes, simply because of the science behind them. Yet the above cliché better describes the reality for those who implement these interventions. They know that evidence-based interventions don't improve outcomes unless they are implemented properly, so that they'll produce good outcomes in a new setting, and last over time.

While implementation has been studied at least since the 1970s (Backer, 2004), most research to date has been uncontrolled and often qualitative rather than quantitative. Results from this research make clear, however, that in all too many cases (and despite good science behind an intervention), implementation in new settings is done poorly, with predictably poor results (Backer, 2000).

In fact, this is the reality in other fields as well. For example, in business, “execution” has become shorthand for effective, rigorous implementation of good practices that are essential to business success. Business leaders are increasingly aware that strategy, planning and resources aren't enough, unless they are catalyzed into effectiveness by good execution.

Now “execution” where evidence-based service interventions are concerned is beginning to get serious attention, partly due to the increasing number of well-validated interventions to implement. Increasingly, new work is focused on “evidence-based implementation” - that is, on developing strategies for implementing interventions that are themselves the result of carefully-controlled research (pioneering work includes Emshoff et al 2000, Mihalic & Irwin, 2003; Spoth et al, 2004).

Research Issues for Implementation Research Results from these pioneering studies can help to shape a comprehensive implementation research plan the National Implementation Research Network now is developing. Five issues needing attention within such a research initiative are:

1 - Documentation

How can implementers document implementation, both as part of implementation research and in their own operations?

One way to improve implementation, and build the body of evidence about it, is simply to increase the willingness and ability of field implementers to document what they do - how they select an innovation, plan for its implementation, go about it, and what happens as a result. Documentation

is essential not only as part of implementation research, but for routine practice, so implementers can identify where they might have gone wrong if they're not getting expected outcomes, and adjust their course accordingly (Backer, 2004).

Insufficient documentation of implementation is not a new problem - in the mid-1960s, a Human Interaction Research Institute study found that more than half of all research grantees of a particular division of the National Institute of Mental Health didn't even file a final report on their research (Backer, 1991)! Then, as now, there is a need for implementers to document what they do and what immediate outcomes they observe. Implementation research can help teach needed skills to implementers, get them in the habit of documenting, and demonstrate through research data that become available where the value of such documentation lies.

2 - Sustainability

How can evidence-based interventions be implemented so they'll last over time, and how can principles for promoting sustainability be incorporated into implementation research?

Even the most rigorous implementation can be considered a failure if the intervention does not last over time - assuming that it is still needed, and nothing better has come along. This also is a not a new issue: in the mid-1970s, another NIMH study conducted by the Human Interaction Research Institute (Glaser & Backer, 1977, 1980; Backer, 1979) looked at the long-term survival of the Fairweather "Lodge" program, a well-validated community treatment program for persons with mental illnesses. Results showed that a key factor for sustainability was early planning for the program's continued operation. Another factor was the ability of program implementers to make certain changes in the program as their community circumstances changed, without altering the basic content of the program. It was through this study that HIRI first became interested in the complex factors of program fidelity and adaptation, as they bear on program success over time.

Program sustainability recently has emerged as a major issue for funders and implementers alike (Cutler, 2002; David, 2002; Cornerstone Consulting Group, 2000), resulting in a growing body of qualitative research and principles for promoting sustainability. This knowledge base needs to be integrated into the implementation research paradigms now being developed, as it is in the current PROSPER study being conducted in Iowa and Pennsylvania by Richard Spoth and Mark Greenberg (Spoth & Greenberg, in press; Spoth et al, 2004). At mid-course in a five-year experimental design, 11 of 13 PROSPER experimental communities have been able to obtain funds to continue one part of the program after it was no longer grant-funded, according to unpublished research data. This is an important, though preliminary, finding, since a major factor in sustainability is the continued availability of resources.

3 - Communication

How can information about evidence-based interventions best be communicated to implementers, and how can good communication practice be part of implementation research designs?

User-friendly communication methods - both to convey basic information about an intervention and evidence about its effectiveness - are central to successful implementation, as has been demonstrated in nearly 100 years of research (Backer, 1991; Backer, David & Soucy, 1995). Typical scientific writing is *not* user-friendly, for instance. Lengthy implementation manuals often are not written or

formatted in ways that make them readily usable by potential adopter audiences. Implementers want information tailored both to their mind-set and to their time schedule, and even well-validated interventions are not as likely to get implemented successfully if the information about them is not presented in this way, whether in publications or training and technical assistance.

As a national implementation research design unfolds, principles for user-friendly communication that come out of the considerable knowledge base on this subject need to be incorporated, so that the knowledge products and learning events used as the “content” for implementation are formatted in ways that will motivate use by implementer audiences serving as the focus for the research.

4 - Resources

How can the financial and human resources needed for effective implementation be obtained, and how can attention to resource needs be included as part of implementation research designs?

Many implementation efforts pay inadequate attention to the need for financial and personnel resources to do the work of implementation, as has been shown repeatedly in research on this subject (Backer, 1991, 2000). Implementation research designs need to incorporate what has been learned from this body of knowledge, so that implementers can address resource acquisition as part of the overall implementation process (and especially as part of sustainability, as already mentioned).

In addition, when resources are limited, it may be necessary to adjust the implementation research design in certain ways. For instance, recent work has shown that very high-fidelity implementations of evidence-based interventions can be achieved when there are significant resources of both funding and technical assistance available to implementers through the researchers studying the implementation process (Emshoff et al, 2000; Fagan & Mihalic, 2003; Mihalic & Irwin, 2003). However, in the larger, uncontrolled environment, where resources are almost always much lower, adaptations are much more common (Ringwalt, et al, 2003). Then pro-active efforts to guide adaptation, by developers or those promoting local implementations, may be necessary for success.

Mixed in with these observations, of course, are values arguments. Some may say that it is better for an intervention not to be implemented if adaptations must be permitted. But in most cases the developers, researchers and systems-level implementers of evidence-based interventions don't have control over the forces promoting implementation, any more than they do over resources! Then the situation becomes one somewhat akin to arguments about giving teenagers sex education and condoms if a by-product is encouraging them to have sex! But the reality is that many teenagers will have sex, and the drives promoting that are not under society's control.

In that case, as with adaptations of evidence-based interventions, difficult decisions may have to be made about harm reduction. Protocols that help implementers deal more strategically with adaptations - documenting them, confining them to what developers identify as “non-core” aspects of the intervention - may increase the overall chances for rigorous implementation. This is even more critical because so many questions remain unanswered about what constitutes “core components,” and about the exact impact of program fidelity and adaptation. Dusenbury et al (2003) summarize recent evidence on this subject, indicating that poor implementation is indeed likely to result in loss of intervention effectiveness, but that research has yet to establish precisely how adaptations affect program outcomes.

5 - Human Dynamics

How can implementation strategy incorporate sensitivity to the complex human dynamics involved in implementing an evidence-based intervention, and how can these factors be included in implementation research designs?

No matter how good the intervention or the science behind it, no matter how good the implementation strategy, efforts to promote change in any complex system are very likely to fail unless the change effort has the support and active involvement of the people who live in that system (Backer, 1991; Backer, David & Soucy, 1995). In particular, those who'll be implementing the intervention need to feel some sense of *ownership* for it, and some degree of active *participation* in developing the implementation strategy.

One force pressing for adaptation of evidence-based interventions is that people and organizations want to feel "it's mine." There is good research evidence (Backer, David & Soucy, 1995) that felt ownership increases the likelihood of successful implementation. Some intervention developers, such as Lynn McDonald and the Families and Schools Together (FAST) program, include as part of implementation encouragement for such felt ownership - by allowing adaptations of certain components identified as "not core" by the developer. Implementation research designs can include attention to these human factors, and to the impact of such tactics on outcomes - including "side effects" such as possible negative impact on fidelity of implementation in a new setting.

Methodological Matters There are also a number of more specific methodological matters that need to be addressed in designing a national research agenda on implementation of evidence-based interventions, such as:

1 - Integrating outside environmental factors Many forces in the outside environment affect implementation, and some of them can be meaningfully integrated into the implementation research design. For instance, Project ALERT, an evidence-based substance abuse prevention intervention, is now being conformed to state health education standards in the states where it is being implemented. This is likely to have a major impact on resources and administrative regulations that may shape implementation in the future. An implementation research design needs to include an "environmental scan" to identify such outside factors, and a decision-process about whether and how to include them in the research design.

2 - Obtaining input from in-process research on evidence-based implementation The PROSPER project (Spath & Greenberg, in press; Spoth et al, 2004), the work just mentioned with Project ALERT, and other in-process studies are not yet (at least fully) in the published literature. These projects are wrestling with many of the key research issues that a national implementation research design will need to address. Preliminary findings, strategies being pursued, and challenges observed

from this in-process work needs to be incorporated in the national design, based on dialogue with these researchers.

3 - Dealing with the challenge of core components Until controlled research has been done to identify core components of evidence-based interventions and determine their relative contribution

to overall effectiveness, there is a practical reality of how to estimate which are the most important components of evidence-based interventions in many fields. What reasonable process can be derived to help do this with various interventions?

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These research issues and methodological matters all are part of the complex answer to the question: “how can evidence-based interventions be implemented successfully?” Training, coaching and performance assessments, combined with consumer, community and policymaker/funder involvement in the implementation process, are the general building blocks of success, as the National Implementation Research Network’s review makes clear.

References

Backer, T.E. (2004). *High-quality implementation: Handling program fidelity and adaptation*. Unpublished paper, not cleared for publication. Rockville, MD: Substance Abuse & Mental Health Services Administration.

Backer, T.E. (2000). The failure of success: Challenges of disseminating effective substance abuse prevention programs. *Journal of Community Psychology*, 28(3): 363-373.

Backer, T. E. (1991). *Drug abuse technology transfer*. Rockville, MD: National Institute on Drug Abuse.

Backer, T.E. (1979). Preliminary report: Long-lasting program research study. *Lodge Notes*, 3(2), 1-2.

Backer, T. E., David, S.L & Soucy, G. (Eds.) (1995). *Reviewing the behavioral science knowledge base on technology transfer*. Rockville, MD: National Institute on Drug Abuse.

Cornerstone Consulting Group (2000). *Preservation and perseverance: Sustainability lessons from transitional neighborhoods*. Houston: Author.

Cutler, I. (2002). *End game: The challenge of sustainability*. Baltimore: Annie E. Casey Foundation.

David, T. (2002). *Reflections on sustainability*. Woodland Hills, CA: The California Wellness Foundation.

Dusenbury, L., Brannigan, R., Falco, M. & Hansen, W.B. (2003). A review of research on fidelity of implementation: Implications for drug abuse prevention in school settings. *Health Education Research*, 18, 237-256.

Emshoff, J. et al (2001). *An ESID case study at the Federal level*. Unpublished manuscript, Georgia State University, Atlanta.

Fagan, A.A. & Mihalic, S. (2003). Strategies for enhancing the adoption of school-based prevention programs: Lessons learned from the Blueprints for Violence Prevention in replication of the Life Skills Training program. *Journal of Community Psychology*, 31(3), 235-253.

Glaser, E.M., & Backer, T.E. (1980). Durability of innovations: How Goal Attainment Scaling programs fare over time. *Community Mental Health Journal*, 16(2), 130-143.

Glaser, E.M., & Backer, T.E. (1977). Innovation redefined: Durability and local adaptation. *Evaluation*, 4, 131-135.

Mihalic, S.F. & Irwin, K. (2003). Blueprints for Violence Prevention: From research to real-world settings - factors influencing the successful replication of model programs. *Youth Violence and Juvenile Justice*, 1(1), 1-23.

Ringwalt, C.L. et al (2003). Factors associated with fidelity to substance use prevention curriculum guides in the nation's middle schools. *Health Education & Behavior*, 30(3), 375-391.

Spoth, R., Greenberg, M., Bierman, K. & Redmond, C. (2004). PROSPER community-university partnership model for public education systems: Capacity building for evidence-based, competence-building prevention. *Prevention Science*, 5(1), 31-39.

Spoth, R. & Greenberg, M. (in press). Toward a comprehensive strategy for effective practitioner-scientist partnerships and larger-scale community benefits. *American Journal of Community Psychology*.

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