Dear NIDA official,

I write in response to the Request for Information on NIDA Dissemination and Implementation Priority Areas (NOT-DA-13-014). My name is Will Aldridge and I am an Investigator at Frank Porter Graham Child Development Institute (FPG) at the University of North Carolina at Chapel Hill, an Implementation Specialist with the National Implementation Research Network (NIRN), and am currently providing staff support to the Global Implementation Conference Planning Committee. During their start-up phase (April 2012-March 2013), I also provided staff support to the Global Implementation Initiative Board of Directors.

My work at FPG/NIRN includes intensive technical assistance and applied research on the active implementation of evidence-based practices across human services and community settings. For example, I am currently providing active implementation support to regional service collaboratives within the Centre for Addiction and Mental Health’s (CAMH; Ontario, Canada) Systems Improvement through Service Collaboratives initiative. In the education field, I am providing active implementation support for evidence-based education practices to state education systems as a part of the State Implementation and Scaling-Up of Evidence-Based Practices Center (SISEP; USA). In health, a colleague and I recently ended an engagement to provide active implementation support for best practices in the prevention and treatment of secondary complications from spinal cord injuries to six spinal cord rehabilitation units in three provinces across Canada.

My professional background is in clinical psychology and I am a licensed (provisional) psychologist in the State of North Carolina (license #103019). I received my Ph.D. in clinical psychology from the University of North Carolina at Chapel Hill and, before joining NIRN in Spring 2012, I was a Center Scientist and Assistant Director for Center Development at the University of South Carolina’s Parenting & Family Research Center (PFRC), where I helped develop community-wide intervention strategies and large-scale treatment outcome research for strengthening parent, child, and family functioning.

During my tenure at the PFRC, a significant portion of my time was committed to the Promise Neighborhoods Research Consortium (PNRC), a national consortium of prevention scientists and community members that collectively assisted high-poverty neighborhoods translate existing knowledge into widespread, multiple improvements in community wellbeing. The PNRC was entirely supported by a Grand Opportunity grant awarded by the National Institute on Drug Abuse (Creating the Scientific Infrastructure for the Promise Neighborhood Initiative, 1RC2DA028946-01). I served in multiple roles with the PNRC, including as a member of the Steering Committee from 2011-2012. As an extension of my work with the PNRC, I served as Scientific Advisor and Consultant to the Eau Claire Promise Zone in Columbia, SC, a local promise neighborhood working to ensure every child in their geographic area was supported with the resources and environment needed for success from birth through college graduation.

Although dissemination has long been a professional passion of mine, it wasn’t until my work with the PNRC that the need for and challenges of active implementation became clear for me. I was struck that,
although we had at our disposal within the PNRC over thirty of the leading senior and early career prevention scientists in the country and despite our efforts to actively disseminate best knowledge and broker several evidence-based interventions with demonstrated benefits for children, adolescents, and families, we were not able to make a measurable impact on the widespread adoption or implementation of evidence-based interventions. Since that time and throughout my tenure with NIRN, I have strived to improve my knowledge, experience, and skill set related to the implementation and scaling-up of evidence-based practices to support socially significant outcomes for all individuals. Let me share some of the important lessons and concepts I have learned by responding directly to a few of your stated areas of concern.

**What are the greatest challenges preventing widespread adoption of evidence-based drug abuse treatment interventions in specialty care settings and in general healthcare settings?**

There have been consistent acknowledgements that the gap between researcher knowledge of effective strategies to improve the wellbeing of vulnerable populations and the actual services received by these populations is far too wide (Institute of Medicine, 2000, 2001, 2007; U.S. Department of Education, 2011). This is a critical issue because children, adolescents, and adults at risk for or suffering from substance abuse cannot benefit from interventions that they do not receive.

Effective implementation has been identified as an essential and yet often neglected component of the science-to-service transfer process (Durlak & DuPre, 2008; Fixsen, Blase, Naoom, & Wallace, 2009; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Meyers, Durlak, & Wandersman, 2012). Far too often we have relied only on the more passive processes of diffusion (“letting it happen” - passive spread of intervention knowledge) or dissemination (“helping it happen” - persuasion of a target group to adopt an intervention and perhaps offering basic training programs to make the intervention knowledge more accessible) to transfer evidence-based strategies for the prevention and treatment of mental and behavioral health disorders and addictions into practice (Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004, p. 593).

Although necessary tools within the larger science-to-service arena, diffusion and dissemination alone have fatal limitations when it comes to actually producing social significant outcomes at scale. Mainly, in both strategies, the recipients of the intervention knowledge (e.g., service providers) are alone left accountable for producing high quality services with fidelity to the intended model of practice. In fact, it may be the case that diffusion and dissemination alone more often lead to situations where effective interventions are inappropriately modified to fit service system contexts rather than service system contexts being changed to support the appropriate the use of effective interventions. As Balas and Boren (2000) and Clancy (2006) have demonstrated, this has not been a recipe for reliable results.

Greenhalgh and colleagues (2004) identified a third strategy for science-to-service transfer: “making it happen” (p. 593). Fixsen, Blase, Metz, and Van Dyke (2013) described this strategy as a set of activities whereby intervention developers and purveyors, in combination with active implementation teams internal to adopting service organizations, take accountability for supporting front-line intervention providers, supervisors, and systems administrators as they, together, attempt to fully use evidence-based interventions in their service setting. Here, the system is purposefully and actively transformed to support full and effective use of the evidence-based intervention; accountability is moved from the
intervention provider alone to the full science-to-service system. Based on this concept, Fixsen et al. proposed a formula for achieving socially significant outcomes:

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\text{Effective Interventions} \times \text{Effective Implementation} = \text{Improved Outcomes} \ (p. \ 214)
\]

Fixsen et al. note that this equation presents as a multiplication problem, signaling that if any of the initial terms are equal to zero, no outcomes will be achieved.

The field of implementation science is rapidly evolving and is starting to coalesce around shared sets of core active implementation components (e.g., Meyers, et al., 2012). Based on the extant literature and over a decade of learning from providing intensive technical assistance to human service organizations working to make full and effective use of evidence-based interventions, the National Implementation Research Network (NIRN) has developed five overarching frameworks designed to respond to the major challenges faced when trying to actively implement evidence-based interventions at scale in typical human service settings. I will briefly turn to each of these challenges and also will call attention to the one-page handout I’ve attached at the end of this correspondence (Handout 1.1 Active Implementation Frameworks).

**Usable Intervention Criteria**

In our work across human service settings, we have often encountered situations where intervention adopters are left without a clear picture of exactly how the intervention they are adopting should be operationalized. Too often, treatment developers stop at providing theories of change or basic intervention principles rather than clearly operationalizing the core active practices within the intervention that, when replicated with fidelity, can be expected to produce targeted outcomes. This phenomenon is paralleled in the literature by findings from Dane and Schneider (1998), who found, in a meta-analysis of over 1200 outcome studies, that intervention researchers assessed the presence or strength of core intervention components about 20% of the time and connected such assessments to outcome data only about 5% of the time.

From an implementation standpoint, this leads to several challenges. First, without a clearly operationalized and measured intervention, the necessary selection, training, coaching, and performance assessment activities needed to make full use of the intervention are difficult to design and implement. In other words, implementing organizations must know the core set of practices for which their practitioners must be selected and to which their practitioners must be trained, coached, and assessed before full and effective use of an evidence-based intervention can be achieved. Often, without a well-operationalized intervention, the implementation process stalls early and on occasion collapses altogether.

Second, without a clear operationalization of the core ingredients of an evidence-based practice, implementing organizations cannot know where adaptations to the intervention might be appropriate (i.e., to the non-essential components of the intervention) or hazardous (i.e., to the essential components of the intervention). When core components are not clearly articulated, the uncertainty about what is required can lead to highly regimented practices with practitioners experiencing the implementation process as inflexible and insensitive to their clinical intuition and clients’ needs. In fact, research that has been done around conducting performance assessments when the interventions are clearly
operationalized within supportive implementation contexts actually suggests greater retention and emotional resilience of service delivery staff compared to contexts without performance assessments for well-operationalized interventions (Aarons, Fettes, Flores, & Sommerfeld, 2009; Aarons, Sommerfeld, Hecht, Silovsky, & Chaffin, 2009).

Finally, without a clear operationalization of what an evidence-based intervention should look like across practice settings, it is nearly impossible to replicate implementation of the intervention with any scale. Instead, what results is a hodgepodge of evidence-informed practice (in contrast to evidence-based practice) in which there is less certainty that active ingredients are present and, thus, that socially significant outcomes can be achieved with any consistency.

In response to these challenges, Fixsen et al. (2013) and Blase & Fixsen (2013), who are all members of NIRN, make the case for “usable intervention criteria,” or the necessary criteria for clearly defining a program so that it can be fully and effectively implemented at scale. These criteria include:

1. A clear description of the program, including philosophy, values, and principles, and clear inclusion and exclusion criteria;
2. A clear description of the essential components or active ingredients of the program;
3. Operational definitions of these essential components such that the program becomes teachable, learnable, and doable in practice; and
4. A practice assessment of the performance of practitioners who are using the program.

A full description of these criteria can be found in Fixsen et al. (2013, p. 219).

Implementation Drivers

Another common challenge that we find across human service settings is that organizations adopting evidence-based programs have not attended to or put into place the core components of capacity and the facilitative infrastructure supports to produce consistent use of selected programs (i.e., “implementation drivers”). We often find that support for the implementation of new evidence-based programs is limited to training programs for transferring intervention-specific knowledge and skills to new sets of practitioners. While this is an absolutely necessary component of implementation support, the evidence suggests that training alone, even in best case scenarios where best practices in adult learning are employed, results in about 5% of practitioners actually applying their new knowledge and skills in practice (Joyce & Showers, 2002).

As mentioned earlier, the field of implementation science is starting to coalesce around shared sets of core active implementation components (Meyers, et al., 2012). My colleagues at NIRN conducted a synthesis of the implementation literature that revealed many of these core components, as described by Fixsen and colleagues (2005) and Fixsen and colleagues (2009). More recently, Metz and Bartley (2012) and Fixsen and colleagues (2013) described with some detail our most recent conceptualization of active implementation drivers. Included in our current understanding are two sets of drivers – competency drivers and organizational drivers – and two sets of leadership strategies that enable those responsible for installing and maintaining the core components of active implementation to adapt to and problem-solve common challenges along the way.

Competency Drivers
Competency Drivers not only include the necessary training supports to build staff competency and confidence to deliver selected evidence-based programs, but also the selection practices, coaching supports, and performance assessment procedures to ensure that staff are well supported throughout the entire implementation process. Utilizing purposeful and effective selection strategies (e.g., assessing coachability and comfort utilizing data, role playing intervention scenarios during the interview process) ensure that staff chosen to provide the selected evidence-based program have the necessary characteristics, pre-training skills, and experiences to make full and effective use of training and, later, coaching supports. We encourage training programs to use evidence-based adult learning methods, such as active learning strategies, small training group size, and adequate duration of training programs (e.g., Dunst & Trivette, 2012). Coaching supports have demonstrated a significant role in increasing practitioners’ utilization of new intervention skills in practice (e.g., Joyce & Showers, 2002). In fact, findings by Joyce and Showers (2002) suggest that adding strong coaching supports beyond initial training can increase practitioners’ utilization of the new intervention skills in their own practice settings to as high as 95%. Finally, as discussed above, putting into place performance assessment strategies within a hospitable environment not only supports staff to reach fidelity criteria for selected evidence-based practices, but may also increase staff retention and decrease staff emotional exhaustion (Aarons, Fettes, et al., 2009; Aarons, Sommerfeld, et al., 2009).

Organization Drivers

In addition to building staff competence and confidence with selected evidence-based programs, organizational capacity within the adopting organization must be built to support practitioners’ and administrators’ full and effective use of selected programs. At NIRN, we describe and assist others in making use of three organizational drivers: decision-support data systems, facilitative administration, and systems intervention. Decision-support data systems include both data dashboards for implementation (e.g. fidelity) and outcome data. Timely, reliable, and actionable data are keys to effective data-based decision making by practitioners, administrators, and policy makers. Facilitative administration and systems intervention both speak to similar challenges: facilitative administration involves best practices of administrators, managers, and leaders for creating an *internally* hospitable environment for selected evidence-based programs whereas systems intervention involves best practices of administrators, managers, and leaders for creating an *externally* hospitable environment for selected evidence-based programs. For example, facilitative administration best practices include the development of linked communications protocols within adopting organizations so that information from practitioners about barriers and facilitators to program practice can be accessible to and utilized by administrators. Systems intervention best practices involve the leadership of adopting organizations interacting with funders, policy makers, and partner service organizations to communicate program needs (e.g., adequate funding, regulatory changes) and share program successes.

Technical and Adaptive Leadership

Installing and monitoring best practices and facilitative infrastructure supports for each competency and organizational driver requires administrators, managers, and leaders to navigate both technical and adaptive problems along the way. As Heifetz and colleagues describe (2009), technical challenges involve problems that, though complex, have relatively clear definitions and solutions and benefit from perspective alignment among stakeholders. Strategies to manage technical challenges often involve clarifying roles and responsibilities, assigning tasks, and managing conflict as solutions are
implemented. Alternatively, Heifetz and colleagues describe adaptive challenges as having elusive definitions and solutions and being characterized by diverse and often competing perspectives among stakeholders. The strategies needed to manage these challenges include regulating distress among stakeholders, creating space for diverse voices, and creating a learning culture within the organization. One of the more important tasks of leaders within organizations adopting evidence-based programs is to correctly identify the nature of evolving problems (i.e., whether they are technical or adaptive challenges) and match appropriate strategies to the problem (Heifetz, et al., 2009).

For each of the implementation drivers and the associated leadership strategies, we at NIRN have identified associated best practices through a review of the extant literature and from a series of meetings with experts in implementation science, interventions developers, and interventions purveyors. We would be happy to share these best practices if that would be of interest and useful.

Improvement Cycles

Beyond the challenges of developing core implementation capacity and facilitative infrastructure supports, we also have seen the challenges human service organizations face in creating continuous quality improvement practices to support new evidence-based programs. Often, organizations invest tremendous financial and human resources in establishing new practices only to wait too long before making necessary adjustments in protocol or policy to support the new ways of work. As a result, the protocols and policies of the old system challenge the viability and sustainability of newly adopted evidence-based practices.

At NIRN, we have adopted and encourage the use of improvement processes that follow the Plan, Do, Study, Act cycle (Deming, 1986; Shewhart, 1931). Two of the more promising processes we’ve utilized with adopting organizations include “usability testing” (e.g., Nielsen, 2005) and “policy-practice feedback loops” (Fixsen, et al., 2013; Metz & Bartley, 2012). Usability testing involves rolling out a new practice with a small number of participants at first, assessing outcomes immediately, making adjustments based on initial outcomes, and executing another iteration of the rollout with another small group of participants (National Implementation Research Network, 2011). This process can be swiftly repeated a number of times using a small number of participants (e.g., N = 20) until outcomes reach agreed upon criteria. This process is particularly helpful when designing new implementation support practices within an adopting organization (e.g., training programs, coaching supports, performance assessment methods) or when the evidence-based program being implemented has not yet been well operationalized (i.e., components of the program can be well operationalized via usability testing). A particular benefit of this strategy is that financial and human resources can be optimized by more quickly establishing viable practices and reaching credible outcomes; four quarterly usability cycles involving 25 practitioners each will generally lead to more viable practices and better initial outcomes than one year-long “pilot” or demonstration project involving 100 practitioners.

As described by Fixsen et al. (2013), policy-practice feedback loops involve a reflective interface between practice and policy where feedback regarding policies designed to enable full and effective use of new evidence-based programs returns to policymakers from frontline practitioners and their implementation supporters (e.g., coaches, trainers, managers, etc.). As such, policy-practice feedback loops can help to de-fragment and better align service systems. Often, as a result of administrative turnover and well-meaning but patchwork policy fixes to service challenges, human service
organizations over time unwittingly create silos and disjointed practices that can threaten the viability and sustainability of newly adopted evidence-based programs. When policy-practice feedback loops are institutionalized, more hospitable and adaptive systems can be created to enable the new ways of work and sustain newly adopted evidence-based programs over time.

Implementation Teams

As discussed earlier in this response, service providers, those who are the direct recipients of training for newly adopted evidence-based programs, are often solely accountable for producing high quality services with fidelity to the intended model of evidence-based practice (or are at most temporary supported only by a peer- or administrative supervisor). In addition, in response to our presentation of implementation drivers and improvement cycles, we often hear the question, “who is responsible and accountable for seeing this work through?”

Our response to both of these challenges is the creation of implementation teams (e.g., Higgins, Weiner, & Young, 2012), groups of at least three, but preferably as many as five-to-ten, people within the adopting organization who have dedicated time for attending to each of the implementation drivers and related leadership strategies, installing and managing improvement cycles, and ensuring the overall quality of implementation efforts and intervention outcomes. In essence, implementation teams provide the mechanism by which accountability for high-quality evidence-based services is intentionally transferred from service providers to the service system itself (see discussion of “letting it happen,” “helping it happen,” and “making it happen,” above). Within multi-level service systems (e.g., state mental, behavioral, and addictions prevention and treatment infrastructures) it is necessary to create implementation teams at each level of the service system and to carefully link these teams via the participation of select team members on teams at adjacent levels of the service system. Additionally, the institutionalization of intentional communication protocols between implementation teams at adjacent levels of the service system strongly links such implementation teams.

The benefits of implementation teams are starting to be documented. Available evidence suggests that implementation teams may be able to reduce the time for evidence-based programs to reach practice from as many as 17 years (Balas & Boren, 2000) to as little as 3 years (e.g., Fixsen, Blase, Timbers, & Wolf, 2001). In addition, the percentage of evidence-based practices sustained may increase from as little as 14% (Balas & Boren, 2000) to as much as 80% with the utilization of implementation teams (e.g., Fixsen, et al., 2001). Several of my colleagues at NIRN are currently working on operational definitions of the essential functions implementation teams and ways to assess core implementation team behaviors in practice. We would be happy to share these with you when available and if that would be of interest and useful.

Implementation Stages

Finally, often present are organization and policy demands that newly adopted evidence-based practices produce results in unreasonably short periods of time. In our experience, these demands can be by-products of grant announcement constraints, current funding cycle structures, and political cycle structures; funders, organization leaders, and policymakers often desire evidence of improved services and outcomes before the next funding or political cycle begins. Despite our shared desires for such rapid returns on investment, the available evidence indicates that two-to-four years are generally
required for well-defined innovations to reach full implementation in human service settings and therefore produce full benefit (Bierman et al., 2002; Fixsen, et al., 2001; Panzano & Roth, 2006; Prochaska & DiClemente, 1982; Solberg, Hroscikoski, Sperl-Hillen, O'Connor, & Crabtree, 2004).

The NIRN synthesis of the extant literature and experience working with organizations who are adopting evidence-based programs generally supports the presence of four stages of implementation: exploration, installation, initial implementation, and full implementation (see, for example, Fixsen, et al., 2013, and Metz & Bartley, 2012, for full descriptions of these stages). Sustainability planning for new programs is an important activity during each stage of implementation. These four stages have generally been delineated by others conducting reviews of the implementation literature (e.g., Meyers, et al., 2012). Our experience has suggested that many efforts to implement evidence-based practices often fail during initial implementation, when newly adopted evidence-based practices and related implementation supports are first activated and a multitude of technical and adaptive challenges are realized. During this time, the presence and functional strength of implementation teams within adopting organizations are highly valued.

**Research necessary to support clinician, program, or system-level adoption of evidence-based practices.**

Current research activity on the implementation of evidence-based programs is largely reflective only of the more passive approaches of diffusion (i.e., “letting it happen”) and dissemination (i.e., “helping it happen”). We believe that there is a strong need for high-quality research on more active forms of implementation (e.g., the practices related to “making it happen” described above). In addition, where current research activity does focus on more active strategies for implementation, more often than not only one component of active implementation is the focus of investigation (e.g., training alone, coaching alone, implementation teams alone). We believe that the greatest strides in implementation science and the largest benefits for the implementation of evidence-based programs in human services settings will be made when research focuses on the integration of multiple components of active implementation (e.g., the full suite of implementation drivers, the work of implementation teams in installing and managing implementation drivers and improvement cycles, etc.).

Over the last decade, our team at NIRN has been working to create a better laboratory for the study of active implementation strategies in real-world settings. Initially, we found a need to get best practices for active implementation into multiple service settings so that these strategies could be appropriately studied and manipulated. We believe we are turning the corner towards having an adequate research laboratory, not only because of our efforts, but also due to the positive efforts of a growing number of active implementation practitioners and researchers who have come to recognize, value, and put into their own work strategies to “make it happen” (e.g., see Meyers, et al., 2012, for a review of various research and practice frameworks for active implementation). Early data from our own research evaluation activities leads us to believe we are on the right track and we would be happy to share these early results with you if that would be of interest and useful.

**How other policies (e.g., regulatory, legal, credentialing) might be addressed to enhance adoption.**

In order for sufficient implementation supports to be developed, sustained, and measured, adequate funding resources need to be allocated. We believe that 15% of service grants/contracts and 15% of
services research grants should be marked for implementation-related activities. Within the context of services grants, for example as related to the implementation of evidence-based prevention and treatment interventions for substance abuse, this 15% allocation could be used to secure appropriate FTE for implementation team members, install decision-support data systems, and fund usability testing as needed for the development of new implementation supports, among other necessary activities. Within the context of services research grants, the 15% allocation could be used to measure the presence and strength of core components of implementation within service systems and analyze the relationships between fidelity to evidence-based practices and program outcomes, among other necessary activities.

In addition, better alignment of funding cycles with the time necessary to achieve full implementation of evidence-based programs (i.e., as much as 4 years, as discussed above) would create more realistic expectations among organization leaders and more supportive environments for achieving success with evidence-based programs in real-world settings. This is not to say that short-term implementation outcomes should not be expected within shorter time-frames (e.g., the installation of adequate training and coaching supports) as well as proximal intervention outcomes. It just may not be realistic to expect strong summative outcomes within shorter time frames.

Thank you for your time and interest in soliciting feedback about these high priority agenda items within the National Institute on Drug Abuse. If I can be of any further service, please do not hesitate to contact me.

Best wishes,

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References


