Research Article

Improving Programs and Outcomes: Implementation Frameworks and Organization Change

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Abstract
This article presents recent refinements to implementation constructs and frameworks. It updates and clarifies the frequently cited study conducted by the National Implementation Research Network that introduced these frameworks for application in diverse endeavors. As such, it may serve as a historical marker in the rapidly developing science and language of implementation. Within this presentation, two studies alternate as examples of how these frameworks can be used as a practical guide for more effective implementation of human service programs.

No one could have imagined that 6 years after the publication of the National Implementation Research Network's (NIRN) seminal study (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005), over 800 people from diverse systems and settings, from every continent except Antarctica, would converge in the late summer heat of Washington, DC, for the first biennial Global Implementation Conference. There researchers, policy makers, administrators, practitioners, and purveyors engaged each other in homogenous and mixed work groups, establishing goals and objectives to further advance implementation science. Such a gathering was implausible prior to the dissemination of NIRN's synthesis of over three decades of empirical implementation studies from a wide range of endeavors. That monograph suggested the initial language and frameworks from which a science of implementation could be systematically applied, examined, and refined in diverse settings (Fixsen et al., 2005).

As that conference convened, NIRN, Mental Health America, and the National Association of State Mental Health Program Directors produced a consensus national policy paper on opportunities and challenges in the implementation of prevention and health promotion initiatives (Bertram, Blase, Shern, Shea, & Fixsen, 2011). These efforts emerged at the same time as a unique literature review that used NIRN's initial iteration of implementation frameworks (Fixsen et al., 2005) to identify gaps in research on wraparound implementation (Bertram, Suter, Bruns, & O'Rourke, 2011).

The concurrence of these publications and the activities emerging from the initial Global Implementation Conference highlighted the need to present the most current iteration of implementation constructs and frameworks in a well-accessed juried publication. This article marks refinements in the evolving language and frameworks of implementation while also offering examples of how the frameworks can be used to support more effective, sustainable human service programs. NIRN's three frameworks include intervention components, implementation drivers, and stages of implementation.

Framework: Intervention Components

In the midst of change, it is wise to begin with what remains stable. Intervention components identified in the NIRN 2005 monograph still provide a sound foundation for exploration, purposeful selection, clarification, improvement, and systematic implementation of a program model. These intervention components include (a) model definition (who should be engaged and how in what activities and phases of service delivery); (b) theory bases supporting those elements and activities; (c) the practice model's theory of change (how those elements and activities create improved outcomes for the target population); (d) target population characteristics (behavioral, contextual, cultural, socioeconomic, and other factors that suggest a good match with the practice model); and (e) alternative

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models (a rationale for why the program therefore rejects using other practice models).

Ideally, consideration of these intervention components should occur during the exploration and adoption stage of program implementation. To effectively implement a purposefully selected practice model with fidelity, a service organization must adjust its infrastructure beginning in the installation stage of program implementation. Then, through the use of model-pertinent data, the service organization should make practice-informed adjustments during the stage of initial program implementation until it achieves targeted fidelity and population outcome benchmarks that characterize the stage of full program implementation (Bertram, Blase, et al., 2011).

These intervention components should be systematically and thoroughly considered, drawing lessons and examples from peer-reviewed empirical studies before adjusting organization infrastructure to support careful selection of a well-defined practice model. However, an organization can benefit from reconsidering their program models through this framework of intervention components (Bertram, King, Pederson, & Nutt, 2014). Even if an evidence-based practice model is not in use, an organization can clarify service delivery by defining who should be engaged in what key activities and phases of treatment or care. Recording these in a program manual can guide future administrators, supervisors, and staff to deliver that service model with fidelity. Empirically developed practice models like multi-systemic therapy (MST) have for many years provided detailed program manuals (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). Promising practice models like wraparound have only recently articulated key elements, activities, and phases (Bertram, Suter, et al., 2011; Walker et al., 2004). But in many programs that broadly describe providing a generic umbrella of counseling or psychotherapy services, practitioners often view manuals as constraining their creativity (Addis, Wade, & Hatgis, 1999; Wampold, 2001).

Nevertheless, in any program, there should be a rationale for key elements, activities, and phases of service delivery. In human services, implicitly or explicitly, this rationale is most often based on theories of what shapes human behavior and/ or in stage theories of individual or family development. A program may have multiple theory bases supporting service delivery, but when this is so, it is important that they complement or are congruent with each other. For example, MST embraces ecological systems theory (Bronfenbrenner, 1979) as a unifying theory base. Who is engaged, how they assess, and the design of interventions focus through or must be congruent with this theory base (Henggeler et al., 2009). Pecora, Reed-Ashcroft, and Kirk (2001) noted a significant need in family-centered services for rigor and consistency in specifying program model, and integrating model definition with staff selection, training, and quality control to avert model drift. Later, NIRN's systematic review of over three decades of empirical implementation studies in diverse endeavors identified the need for clarity and congruence between key elements, activities, phases, and their theory bases to ensure effective program implementation with fidelity (Fixsen et al., 2005).

However, programs or service providers all too often assert that they use an eclectic approach based upon each client's needs. When this occurs, model definition and theory bases are often neither clear nor congruent, creating many unnecessary and costly challenges to effectively deliver and sustain such service, particularly following staff turnover. For example, in a study of program implementation at 34 master of social work (MSW) student field placement sites in Kansas City, many organizations identified case management as their program model. In purposeful, stratified samples of staff at each field site, semistructured interviews focused through NIRN frameworks. In these organizations, administrators, supervisors, and service providers indicated that ecological constructs, such as person in environment grounded in a value-based strengths perspective, shaped collaborative assessment and planning with clients. However, they also indicated that projection and transference (constructs from expert practice models using psychodynamic theory) shaped their assessment and planning. Respondents within each organization also could not similarly define key elements, activities, or phases of their program model. Invariably, when there were incongruent or unclear model definitions and theory bases, these organizations did not have program or training manuals and invariably selected, trained, and coached staff in a highly bureaucratic manner that could not support fidelity to their ill-defined service model (Bertram, King, et al., 2014).

Within NIRN's framework of intervention components, target population characteristics similarly require careful consideration by the service agency. Gender, age, race, ethnicity, socioeconomic, contextual and cultural factors, behavioral concerns, and multisystem involvement or other characteristics of the program's target population should shape an organization's selection, rejection, or refinement of a practice model. In so doing, the organization addresses another NIRN intervention component, alternative models (and why they were rejected). For example, individual counseling or psychotherapy is not a productive practice with lower income gang affiliating youth whose antisocial aggressive or substance-using behaviors are shaped by daily interactions between and within the family, the school, the community, and youth peer groups (Henggeler et al., 2009). Interestingly, within most community-based organizations examined in the study of program implementation in Kansas City, interviewees were often neither detailed nor consistent in describing client population characteristics. Whenever this occurred, the program model was broadly described as providing counseling and/or case management services (Bertram, King, et al., 2014).

Target population characteristics should also be considered in examination of the final NIRN intervention component, theory of change. How do key elements, activities, and phases of the program align with or impact desired improvements in the context or in the behaviors of concern of the target population? Is there logic to the program logic model? How will specified program elements, participants and activities diminish or eliminate the behaviors of concern or contributing factors to the behaviors of concern to produce improved client outcomes?
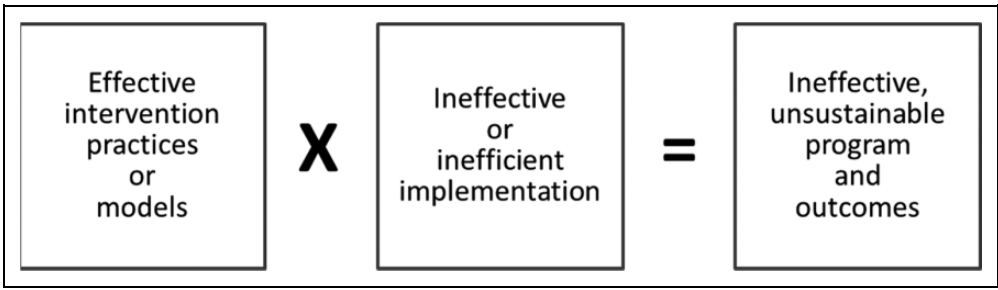
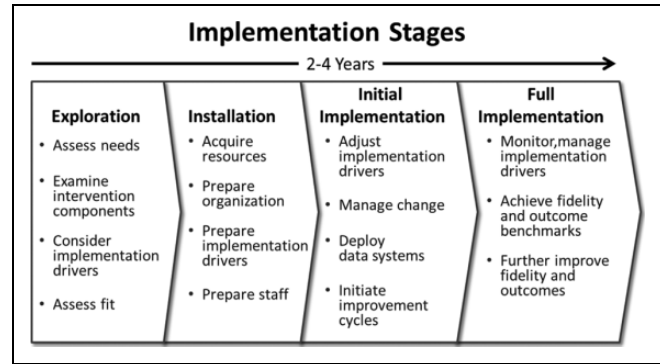**Figure 1.** Practice models, implementation, and outcomes.

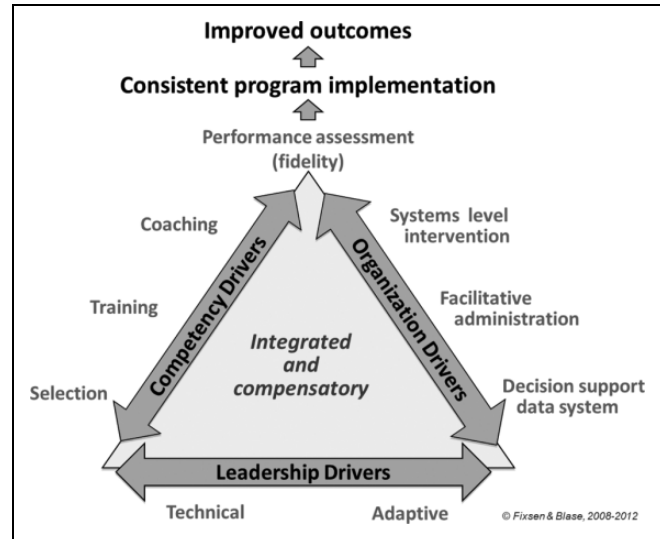**Figure 2.** Stages of implementation.

Figure 3. Implementation drivers.

Careful consideration of model definition, theory base, and target population characteristics should characterize the logic and critical thought defining a program's theory of change.

In the Kansas City study of program implementation, theory of change was not well understood. Even when questions were simplified to "How does what you do in this program help your clients?" staff from all levels of community-based service programs repeatedly provided uncertain, differing, or incomplete answers. For example, counselors highlighted development of

client insight or provision of emotional support. Case managers in the same program highlighted meeting basic needs of clients, while supervisors and administrators described clients as having multiple problems that were impossible to address by their less than well-funded agency. Respondents seldom described how counseling with case management services that addressed fundamental needs could establish a basis for the clients to begin to address other problematic aspects of their lives (Bertram, King, et al., 2014).

A participatory evaluation of wraparound implementation at a very well-endowed SAMHSA Children's Mental Health Initiative grant site in Houston, TX, also identified confusion about model definition, theory base, and theory of change for wraparound (Bertram, Schaffer, & Charnin, 2014). Consumers, administrators, supervisors, and direct service providers interpreted wraparound's value-based philosophy differently, and sometimes confused its 10 defining principles (Bruns et al., 2004) while inconsistently and inefficiently organizing child and family wraparound teams. We will return to that study as we present the NIRN framework of implementation drivers.

Indeed, although the entire framework of intervention components should be examined whenever a program considers adopting or adapting a practice model, this will not ensure the organization's ability to achieve and sustain improved population outcomes. Selecting or clarifying a program model is but the first step. Then, organizations must change to support that program model (Bertram, Blase, et al., 2011; Bertram, Suter, et al., 2011; Fixsen et al., 2005). Without these adjustments, implementation may lack fidelity and prove ineffective, inefficient, and unsustainable (see Figure 1). We next describe two related and overarching frameworks, stages of implementation (Figure 2) and implementation drivers (Figure 3). Each has been clarified and refined since the publication of NIRN's 2005 study.

Framework: Implementation Stages

Implementation is not an event but a process of carefully considered organizational adjustments that unfold over the course of 2–4 years (Bertram, Blase, et al., 2011; Fixsen, Blase, Naoom, & Wallace, 2009). In 2005, NIRN's seminal monograph discussed program implementation as a process influenced by changing socioeconomic and political contexts that unfolded through six stages (Fixsen et al., 2005). Since then,

the stages of implementation have been integrated and refined (see Figure 2). Program innovation is no longer described as a separate stage and should only be considered after achieving targeted benchmarks of fidelity and population outcomes (Winter & Szulanski, 2001). Then, as innovations are considered, the service organization must readdress exploration, installation, and initial implementation stage activities.

Another key conceptual refinement to NIRN's initial identification of implementation stages is the understanding that sustainability is not an end stage of implementation. It is instead a critically necessary concern and focus of activities in each stage of implementation. Although Figure 2 visually appears to imply a linear progression through stages of implementation, it is important to remember that at any point, significant changes in socioeconomic conditions, funding, leadership, staff turnover, or other events may require the organization to readdress activities of earlier stages of implementation.

Exploration

This stage is sometimes also called "exploration and adoption." In this initial stage of implementation, the organization should consider the potential match between target population characteristics, organization and community resources, and the program model's key elements, activities, and phases (model definition), theory bases, and theory of change. Careful consideration of these intervention components should guide the service organization's decision to proceed or not to proceed with implementation of a new program. In this stage, potential barriers must be examined such as funding streams and requirements, staffing patterns, sources of referrals as well as organization and systems changes that may be needed to support implementing the program with fidelity to achieve improved population outcomes. This exploration process should produce a decision regarding the appropriateness and potential benefits of the new or refined program and a clear implementation plan with tasks and timelines to facilitate effective and efficient installation and implementation. Proactive, small adjustments in this exploratory stage reap great benefits, while not making time and effort to fully explore adoption or adaptation of a program model will amplify future challenges as attempts are made to install and bring it to scale (Bertram, Blase, et al., 2011).

In the exploration stage, the assessment of community and organization resources, population characteristics and needs, and their match with the program model should focus upon both population outcomes and implementation outcomes. Population outcomes refer to behavioral or structural outcomes sought for the target population (e.g., reduced school suspensions, improved academic performance, increased housing opportunities, etc.). Implementation outcomes refer to organizational adjustments to support fidelity and sustainability of the program so that desired population outcomes are more likely to occur. At this point in the development of evidence-based or evidence-informed programs, most attention has been paid to describing and measuring population outcomes. A review of over two decades of wraparound literature that focused through

the initial NIRN frameworks (Bertram, Suter, et al., 2011) noted that most publications reporting wraparound outcomes described intervention (population) outcomes ($N = 48$), while fewer publications discussed implementation outcomes ($N = 15$). However, improved population outcomes depend upon changes made within the service organization to support the program model. Therefore, it is also essential to examine and, when possible, to measure the effects of these organizational adjustments.

Installation

After a decision is made to begin a new program or to refine current services, there are key tasks to accomplish before consumers and other participants experience a change in practice. These activities define the installation stage when resources are consumed as structural supports necessary to initiate the new or refined practice model are organized. These instrumental concerns require methodical examination and adjustment of what NIRN had described as a framework of core implementation components (Fixsen et al., 2005, 2009). Since 2005, these components have been clarified and organized into three classes of implementation drivers (competency, organization, and leadership). These drivers are described and comparative examples provide greater detail in the next major section of this article (see Figure 3).

In the installation stage, the competency and organizational drivers necessary for high fidelity implementation and improved population outcomes must be established or repurposed by the service organization with purveyors who have program and implementation expertise and with other systems partners. Installation requires moving beyond consideration and planning to systematically addressing each implementation driver. Thus, model-pertinent criteria for staff selection and training and for the frequency, formats, and focus of coaching should be defined and integrated with data systems, policies, and procedural protocols developed for measuring program fidelity. If the actions of other systems engaging the target population could compromise effective program implementation, then explicit cross-systems protocols may need to be created by administrators through purposeful systems-level intervention. For example, a cross-systems policy and procedural protocol is frequently necessary in multidisciplinary team response to reports of child sexual abuse (Bertram, 2008; Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001).

These and related installation-stage activities and their associated costs require both time and resources. In the examination of program implementation in Kansas City, administrators often cited constraints of time and cost when queried about more methodical, thorough program implementation (Bertram, King, et al., 2014). But regardless of funding, use of technological resources and organizational improvement are increasingly expected and essential (Chorpita, Bernstein, & Daleiden, 2008). By focusing program installation on tackling instrumental resource issues and the development or repurposing of the framework of implementation drivers (see

Figure 3), an organization will be less likely to suffer the common, costly error of inserting a new or refined program model into an existing infrastructure, only to achieve disappointing program fidelity and population outcomes (Bertram, Blase, et al., 2011). A recent examination of wraparound implementation in Houston, TX, provides an excellent example of this error. There one of Substance Abuse and Mental Health Services Administration (SAMHSA) Children's Mental Health Initiative grantees initiated the implementation of wraparound, a collaborative team-based, family-driven practice model (Bertram, Suter, et al., 2011; Bruns et al., 2004; Walker et al., 2004). However, it was installed within the organizational structures, data support systems, policies, and procedures of the host child welfare system. Failure to evaluate and repurpose the organizational structures previously developed to support legally mandated child welfare investigation and services resulted in a confusing, less effective, or efficient wraparound implementation that did not meet fidelity expectations (Bertram et al., 2014).

Initial Implementation

Initial implementation of any program requires new understanding and activities. Here, the excitement and anticipation of new ways of providing service meets human inertia, fear of change, and investment in the status quo. This is an awkward period of high expectations, challenges, and frustrations. In this stage, new programs survive and thrive if they learn from mistakes and address challenges systematically and systemically rather than seeking technical solutions to each challenge in isolation from other concerns and challenges (Bertram, Blase, et al., 2011).

Successful program implementation requires examination and alteration of organizational structures, culture, and capacity as well as development of new staff competencies. During the stage of initial implementation, unanticipated constraining factors may emerge. People, organizations, and systems tend to become comfortable with or accustomed to the status quo. In the stage of initial implementation, concerns and uncertainty about changes in roles, responsibilities, and practices should be expected. Although there may be much outward enthusiasm during the exploration and installation stages, many staff at all levels will not fully embrace organizational changes necessary to effectively implement the program model. For example, in Houston's System of Hope, following a participatory evaluation and revision to wraparound implementation that included consumers, administrators, and supervisors, these dynamic organizational and human behavioral patterns emerged. Although those supervisors understood and expressed excitement about changes they helped shape, when their staff expressed confusion about coaching and data system revisions, supervisors initially hesitated to work within these revised structures and expectations (Bertram et al., 2014).

During initial implementation, these natural tendencies to resist change often combine with the complexities of implementing something new to test confidence in the decision to provide a better defined or new program model and its practices. What is required during this stage is steady leadership that normalizes challenges, that provides increased coaching and support for practitioners, and that employs rapid data-informed problem solving. At the Houston site, administrators maintained their commitment to revised wraparound implementation, insisting that the site continue with regularly scheduled, model-pertinent, data-informed coaching, and technical assistance improvement cycles. Despite the site's focus upon a highly diverse, poor population with severe behaviors, within 18 months, the revised implementation improved fidelity scores and client outcomes to well above the national mean for similar grant sites (Bertram et al., 2014).

Full Implementation

Program services are inefficient, poorly executed, ineffective, or are not sustained when the host organization attempts to move to full implementation without developing or repurposing and working through the framework of implementation drivers (see Figure 3). When model-pertinent implementation drivers are established, tested, and adjusted during installation and initial implementation stages, full implementation that achieves improved population outcomes with fidelity in a sustainable manner is more likely to occur (Bertram, Blase, et al., 2011).

Full implementation occurs when most practitioners are routinely providing the new or refined program model with good fidelity. They are therefore more likely to achieve population outcomes that approximate those attained through research or in similar efforts at other service settings. Full implementation means that implementation drivers are fully installed and easily accessible, are functioning to support fidelity, and are regularly reviewed with an eye toward improvement. The time required to pass through the awkward stage of initial implementation to full implementation will vary from setting to setting and practice to practice (Bertram, Blase, et al., 2011).

Framework: Implementation Drivers

This framework has also been called core implementation components (Bertram, Suter, et al., 2011; Fixsen et al., 2009). Differentiation of these components into three classes of integrated and compensatory implementation drivers is a significant refinement made since the original presentation of this framework (Fixsen et al., 2005).

Implementation drivers (see Figure 3) establish the capacity to create practice, program, and systems-level changes needed to achieve improved population outcomes. They are the infrastructure elements required for effective implementation that support high fidelity, effective, sustainable programs (Bertram, Blase, et al., 2011; Blase, Van Dyke, Fixsen, & Bailey, 2012). Competency drivers develop the competence and confidence of practitioners by attending to staff selection, training, coaching, and performance assessment (fidelity). Organization drivers create a more hospitable administrative, funding, policy, and

procedure environments to ensure that the competency drivers are accessible and effective as well as to ensure continuous quality monitoring and improvement with attention to population outcomes. Leadership drivers discriminate adaptive challenges from technical challenges to implementation (Heifetz & Laurie, 1997). Appropriate leadership strategies and expertise must be selected to establish, repurpose, adjust, and monitor the competency drivers and the organization drivers throughout implementation stages (Bertram, Blase, et al., 2011).

These drivers of implementation must be purposefully integrated to promote high fidelity and improved population outcomes. The extent to which they are well considered and integrated will reshape organizational culture and climate (Bertram et al., 2014; Fixsen et al., 2009). They are compensatory because weakness in one driver can be mitigated by strengths in others. For example, if model-pertinent training is underfunded or temporarily unavailable, model-pertinent, data-informed coaching may compensate to build staff competence and confidence. It's essential to remember that while many of the components of each of these drivers may currently exist in organizations and systems, they must be consciously repurposed and integrated to promote effective implementation of the organization's service model with fidelity.

Competency Drivers

The purpose of competency drivers (see Figure 3) is to promote competence and confidence of those engaged in implementing the program model so that high fidelity and improved population outcomes are both more likely to occur and to be sustainable. By focusing staff selection, training, coaching, and performance assessment on what is required to implement the key elements, activities, and phases of the program model, these drivers can be arranged to function in an integrated and compensatory manner with other implementation drivers to achieve desired population and implementation (organization) outcomes.

For example, not every newly hired or reassigned practitioner will have a complete or fully developed set of model-pertinent knowledge and skills. Preservice training will help, but every participant will not develop knowledge and skills to the same degree from that training. Coaching that is integrated with training and informed by case-specific, model-pertinent data can compensate for posttraining deficits as well as further develop professional judgment and the ability to generalize from a training setting to the real world (Bertram, Blase, et al., 2011; Bertram, Suter, et al., 2011). All competency drivers should target selection for and enhancement of the knowledge, skills, and aptitude needed to implement the program's service model effectively, efficiently, and with fidelity. In NIRN implementation drivers, performance assessment measures model fidelity. Thus, the performance assessment driver also functions as a barometer for how well the implementation infrastructure is functioning to promote competence and confidence (Bertram, Blase, et al., 2011).

Staff selection. Staff selection is infrequently discussed and less frequently evaluated in the literature (Fixsen et al., 2005). In a review of program implementation at 34 MSW field placement sites in or near Kansas City, the most common criteria used by programs in selecting staff was educational background and/or licensure. Only a handful of sites sought staff with knowledge of, or aptitude for, engaging the target population (Bertram, King, et al., 2014). In a recent review of over two decades of wraparound literature that focused through the original NIRN implementation framework (Fixsen et al., 2005), no publications were found which described or studied staff selection (Bertram, Suter, et al., 2011). Although it may be necessary to select licensed staff for purposes of insurance or funding source requirements, it is both possible and necessary to establish staff selection criteria that also seek model-pertinent or target population-specific knowledge, skills, or aptitude.

Some model-pertinent attributes are not easily trained or coached and therefore must be part of the predetermined selection criteria. For example, being able to compassionately and comfortably work with women from diverse backgrounds with multiple needs might be a prerequisite for staff selection at a domestic violence shelter. Comfort with diverse and conflicting professional perspectives might be criteria for a team facilitation role in the multidisciplinary investigation of child sexual abuse at a children's advocacy center. The ability to engender trust or to work in a nonjudgmental manner are personal attributes that are best selected for since they may be extremely difficult or time consuming to develop through training and coaching. In a similar vein, implementing evidence-based practices requires the capability and willingness to review literature, to seek data and accept feedback, and then to act upon on it (Barwick, 2011; Barwick et al., 2008; Hoge et al., 2005). Further, if prospective employees are data averse, difficult to coach, or have difficulty implementing clear feedback, it will be very challenging for them to achieve model fidelity. Therefore, an assessment of "coach-ability" during the staff selection interview process can be helpful. Like other implementation drivers, guidelines for staff selection should be proactively considered in the exploration stage, then established and refined during installation and initial implementation stages.

Although moving a new program or practice model from installation through initial implementation to full implementation, staff selection must be considered in the context of socioeconomic conditions, program funding, staff compensation, and workforce development as well as the demands of the program model. Here organizational drivers of implementation interface with competency drivers through facilitative administrative practices (Bertram, Blase, et al., 2011). For example, participatory evaluation of wraparound implementation at the Houston SAMHSA grant site identified the size of caseload as a contributing factor to less than expected fidelity scores. The grant's program model, wraparound, had been overlaid upon policy and procedures developed for case management services in the host child protective service organization. Although a caseload of 20 families was appropriate for case

management that required one or two home visits per month, that same caseload constrained staff ability to develop family-driven wraparound teams composed of natural supports and formal service providers. Therefore, the site administrator negotiated a 50% reduction in caseload to enable staff to enact wraparound's key elements and activities (Bertram et al., 2014).

Training. Successful, efficient, and sustainable implementation of any practice model requires behavior change in service providers, their supervisors or coaches, and in the administration of the host organization. Training and coaching are the primary competency drivers through which this behavior change is developed in carefully selected staff (Bertram, Blase, et al., 2011; Henggeler et al., 2009; Schoenwald, Brown, & Henggeler, 2000; Schoenwald, Sheidow, & Letourneau, 2004). Preservice training during the installation stage and in-service training during subsequent implementation stages should help develop a shared knowledge of population characteristics, the rationale for choosing the program model, the model definition, including its key elements, activities, phases, and the theory bases supporting them as well as the program model's theory of change. There should be opportunities to practice model-pertinent skills and to receive supportive, constructive feedback in a safe environment. Implementation outcomes related to this competency driver are measurable. An organization can establish data systems to evaluate pre- and posttraining changes in model-pertinent staff's knowledge and skills. These data can provide baseline information for subsequent coaching toward further development of staff confidence and competence. By integrating such data with fidelity performance assessments, administrators can evaluate effectiveness of the training and coaching drivers (Bertram et al., 2014; Bertram, Bruns et al., 2011). Sadly, in the review of program implementation in Kansas City, none of the 34 organizations employed pre- and posttraining measures of model-pertinent knowledge and skills. There, in poorly defined and nonmanualized program models, training focused primarily on client privacy and employee rights. Some organizations indicated they allowed staff to individually select externally provided training to meet licensure requirements but did not monitor whether that training supported the program's service model. Notably, none of these organizations measured model fidelity (Bertram, King, et al, 2014).

Coaching. Model-pertinent training improves staff buy-in and understanding and promotes basic knowledge and skill development. However, increasingly competent and confident use of any service model is most effectively developed through skillful on-the-job coaching (Agar & O'May, 2001; Denton, Vaughn, & Fletcher, 2003; Schoenwald et al., 2004). Best practices in coaching include developing and adhering to the formats, frequency, and focus described in a written coaching plan as well as ensuring that supervisors and coaches are themselves well selected, trained, coached, and held accountable for enhancing staff development. In addition, coaching is most effective when it includes multiple forms of information and

data used in an improvement cycle loop (e.g., observe, coach, data feedback, plan, reobserve). It always should include some form of direct observation (e.g., in-person, audio, video) to accurately assess and develop practitioner skill and judgment (Bertram, Blase, et al., 2011; Schoenwald et al., 2000).

Coaching should support staff in trying out new skills or abilities. It is especially important to provide this support during initial implementation when they are likely to be uncomfortable and awkward as they implement the new practice. Staff at every level must be encouraged to persist in developing new capabilities rather than reverting to previous approaches that are more comfortable but not as effective. In a review of program implementation at 34 MSW field placement sites in or near Kansas City, most programs indicated that coaching was not systematically data informed nor focused upon enhancement of model-pertinent knowledge and skills. Instead, it occurred on an ad hoc, as-needed basis that focused upon risk containment or harm reduction in the most problematic cases and also addressed bureaucratic administrative concerns. These same organizations offered external training for continuing education credits to maintain licensure rather than to further the development of model-pertinent knowledge and skills (Bertram, King, et al., 2014).

These inefficient and ineffective approaches to staff development contradict lessons in the literature that training alone is insufficient to develop model-pertinent staff confidence and competence (Fixsen et al., 2009; Schoenwald et al., 2004). Prior to making revisions to wraparound implementation in Houston, that grant site provided occasional, sometimes content repetitive training events in wraparound by different outside experts (purveyors), then supported staff with the same ad hoc, risk containment coaching procedures use by the host child welfare organization. This structure contributed to fidelity scores below the national mean and poorer than anticipated client outcomes. However, both client outcomes and fidelity scores improved when training and data support systems were integrated with regularly scheduled, model-pertinent, data-informed coaching of direct service staff. This organizational change was supported by regularly scheduled, model-pertinent, data-informed technical assistance for administrators and supervisors. In 18 months, fidelity scores and client outcomes improved above the national mean (Bertram et al., 2014).

Performance assessment. The final competency driver is performance assessment. All of the purposeful stratified sample of staff interviewed at 34 MSW field practicum sites examined in the greater Kansas City area believed that performance assessment was equivalent to employee performance evaluation for job retention or promotions (Bertram, King, et al., 2014). However, as a driver of effective, sustainable program implementation, performance assessment should examine model fidelity. One type of model fidelity is related to practitioner performance with consumers. Creating competent practitioner performance is the responsibility of the service organization. It is a reflection of how well the competency drivers of staff selection, training, and coaching are operating, as

well as how hospitable and functional the environment is in promoting conditions conducive to high-fidelity practice (Schoenwald et al., 2004).

The second type of fidelity that can be measured is related to organizational performance as evidenced in each of the implementation drivers. For example, is training provided as planned and intended? Are pre- and posttraining tests integrated with an individualized plan for coaching further development of staff knowledge and skills? Is coaching occurring as scheduled, and is it recursive to training content, and informed by model-pertinent case data and observations of practice? If during installation and initial implementation stages, data systems were well designed to provide timely information related to model fidelity, then these performance assessment data will provide direct service staff, supervisors, administrators, and purveyors with relevant information about implementation progress. For example, in biweekly Skype consultation, after reviewing case-specific data, Houston's Systems of Hope administrators, supervisors, and an implementation consultant regularly adjusted the frequency, focus, and formats of coaching in relation to staff patterns of wraparound team composition, structure, and assessments as well as the design and effectiveness of interventions. This model-pertinent focus and integration of revised competency and organization drivers produced significant improvements in wraparound fidelity and client outcome measures (Bertram et al., 2014).

With such data, the effectiveness of staff selection, training, and coaching can be assessed and adjusted. These data may suggest administrative issues or concerns as well as systems-level factors requiring attention because they constrain achieving model fidelity or population outcomes. Thus, performance assessment informs continuous quality improvement of both organization drivers and competency drivers of implementation, as purveyors, administrators, supervisors, and practitioners use implementation data to guide staff and program development (Bertram, Blase, et al., 2011; Bertram et al., 2014; Schoenwald et al., 2004).

Leadership Drivers

Initial presentations of NIRN's framework of core implementation components discussed the critical role of leadership and of purveyors (Fixsen et al., 2005). Recent discussions bring these roles and responsibilities forward in a more differentiated manner (see Figure 3) and are articulated as leadership drivers that attend to both technical and adaptive leadership strategies (Bertram, Blase, et al., 2011; Fixsen et al., 2009; Heifetz & Laurie, 1997; Heifitz & Linsky, 2002).

Technical leadership is appropriate in circumstances characterized by greater certainty and agreement about both the nature of the challenge and the correct course of action. Challenges under these conditions respond well to more traditional management approaches that focus on a single point of accountability with clearly understood and well-accepted methods and processes that produce fairly reliable outcomes (Daly & Chrispeels, 2008; Waters, Marzano, & McNulty,

2003). Resolving procedural problems usually call for technical forms of leadership.

Adaptive leadership is required when there is less certainty and less agreement about both the definition of the problems and their solutions. Adaptive leadership strategies are needed in complex conditions to convene groups that work to identify and understand a challenge and to then develop consensus based on group learning to address that challenge (Daly & Chrispeels, 2008; Waters et al., 2003). Among the implementation drivers, coaching, facilitative administration, and systems-level interventions are more likely to require adaptive forms of leadership to determine what the problems are, what learning will be required to reach consensus about possible solutions, and to then attend to results of attempts to solve the problems. Previously discussed revisions to wraparound implementation in Houston that emerged from a participatory evaluation by consumers, administrators, and supervisors provide a rich example of adaptive leadership strategies (Bertram et al., 2014). Another practical example of adaptive leadership emerged in the review of program implementation at 34 MSW field practicum sites in or near Kansas City. There, the state child protective services organization determined it must convene its leadership with administrative representatives from family court and the guardian ad litem office to clarify and address problems in implementation of family support teams in which each system's direct service staff participated. These teams were intended to develop individualized service plans shaped by family voice. However, they consistently generated the same service recommendations for every family situation. This compromise of model fidelity had to be analyzed, understood, and resolved by administrators addressing systems-level organizational concerns (Bertram, King, et al., 2014).

Heifetz and Laurie (1997) state that a common error is applying technical leadership tactics under conditions that call for adaptive leadership strategies. For example, if Missouri child protective services had attempted to solve the fidelity challenge to its family support team model by retraining the other systems' staff, this would be a technical solution to a challenge requiring adaptive leadership. Not all leaders are willing or able to easily recognize or transition smoothly to and from technical and adaptive leadership strategies and styles. However, both are required for successful implementation and sustainability of outcomes (Bertram, Blase, et al., 2011).

Organization Drivers

Since NIRN's initial presentation of implementation components (Fixsen et al., 2005), organization drivers (see Figure 3) are differentiated and discussed as activities or concerns in each implementation stage. Careful consideration of these drivers in the exploration stage of implementation provides model-pertinent assessment of agency and system readiness to implement a new or a refined program model.

In our previous discussions of competency and leadership drivers, we provided examples in which adjustments in facilitative administration, decision-making data support systems,

and systems-level interventions were necessary during the stages of installation and initial implementation (Bertram et al., 2014; Bertram, King, et al., 2014). Such adjustments help establish a hospitable implementation environment in which the organization's culture and climate is shaped by well-considered model-pertinent adjustments to integrated and compensatory implementation drivers (see Figure 3). Sustained and effective use of competency drivers via performance assessment and population outcome data is the basis for continuous quality improvement.

Facilitative administration. Administrators must be proactive. They should work back from desired outcomes to facilitate organizational change in each stage of implementation. This begins in the exploration stage as needs and organizational capacities to implement the program model are assessed. Facilitative administrative activities can then be specifically focused on policy and procedures required to effectively, efficiently, and with fidelity sustain program implementation through turnover in practitioners and administrations (Bertram, Blase, et al., 2011).

During installation and initial implementation stages, existing policies and procedures as well as data support systems must receive close scrutiny. Are they appropriate for the practice model? Are there adequate human and technical resources and how might they be repurposed or reorganized to best effect? Attention to such questions impacts both implementation outcomes and population outcomes. For example, in Houston a participatory evaluation of program implementation identified multiple factors compromising wraparound model fidelity. Job descriptions, caseload size, training, coaching, and decision support data systems had to be integrated and adjusted to support development of staff competence and confidence in delivery of wraparound. Caseloads were reduced from 20 to 8 or 10 cases per wraparound care coordinator. Position responsibilities of the care coordinator and parent partner were differentiated. Coaching responsibilities were reorganized so care coordinators and parent partners working with the same family would receive coaching from the same supervisor. Revised training clarified theory bases that supported and could guide key elements and activities of wraparound's value-based principles and philosophy. Case data forms were revised to re-enforce the new training content while informing a more systematic approach to staff development through regularly scheduled coaching. Biweekly Skype review of these data by the consultant, supervisors, and administrators identified subsequent implementation patterns and guided further adjustments to the focus, frequency, and formats of coaching. After 18 months of these integrated organizational changes, both Wraparound Fidelity Index scores and target population outcomes improved to above the national mean (Bertram et al., 2014).

As implementation fidelity is more routinely achieved, administrators should continue to facilitate and learn from the flow of information that emerges in practice-to-policy and policy-to-practice feedback loops. Through these practice-informed policy (PIP) and policy-enabled practice (PEP) cycles

of information and change, facilitative administration tracks fidelity and outcome data to identify and correct model drift and facilitate development and testing of useful adaptations after full implementation fidelity and population outcome benchmarks are achieved. Facilitative administration seeks and responds to feedback directly provided from the practice level regarding barriers to, as well as the facilitators of, both implementation outcomes and population outcomes (Bertram, Blase, et al., 2011; Bertram et al., 2014; Blase et al., 2012; Schoenwald et al., 2004).

Each implementation driver (see Figure 3) must be consistently monitored for quality and fidelity. When data demonstrate drift in quality, or in the model pertinence of drivers, the likelihood of practice fidelity and improved outcomes will diminish. Thus, facilitative administration should continuously monitor and seek to improve all competency drivers. Data reflecting the quality of a specific implementation driver must be provided to those responsible to make appropriate adjustments (e.g., staff retention, expected knowledge and skill gains from training, improved model-pertinent abilities achieved through data informed coaching, etc.). Transparent and responsive PIP and PEP feedback loops demonstrate a commitment to quality improvement in continuous cycles of planning, doing, studying, acting, and engaging in new plans to make further improvements (Bertram, Blase, et al., 2011).

In this manner, facilitative administration reshapes organizational culture and climate to focus on and actively support the achievement and sustainability of improved implementation and population outcomes. Working within and through implementation frameworks, the goal of facilitative administration should be to adjust work conditions to accommodate and support new functions needed to implement the program model effectively, efficiently, and with fidelity. For example, although caseloads were reduced by 50% in the Systems of Hope Houston grant site, the integrated and compensatory nature of revisions to many other implementation drivers resulted in serving more families while scores on fidelity and outcome measures advanced above the national mean (Bertram et al., 2014).

Systems-level interventions. Stages of implementation unfold in an ever-changing context of federal, state, organizational, and community factors that are themselves influenced by shifting socioeconomic, political, and cultural concerns. After exploration activities, installation and implementation stage efforts can be overwhelmed by changing environments that may constrain achieving expectations for model fidelity or outcomes for the program's target population.

Practice fidelity, population outcomes, and program sustainability may directly or indirectly be influenced by the alignment of federal, state, organization, and community systems. A vigilant facilitative administration analyzes constraining or supporting systems-level factors influencing model fidelity and the outcomes for the program's target population. An excellent example of the systems-level intervention driver in action was previously described regarding mutual examination of

diminished fidelity by administrators from multiple systems engaged in a Kansas City child protective services family support team model (Bertram, King, et al., 2014). Regardless of the stage of implementation, influential persons from relevant systems must be engaged to create, facilitate, and sustain necessary policies, practices, or funding mechanisms so that a service organization's program model can be implemented with fidelity and achieve desired population outcomes (Bertram, Blase, et al., 2011).

Decision support data systems. In current implementation frameworks, decision support data systems are explicitly presented as a key infrastructure component of the organization drivers that must be developed or repurposed in the program installation and initial implementation stages. NIRN's original presentation of implementation frameworks did not explicitly define and discuss this as a separate component (Fixsen et al., 2005).

Model-pertinent data to guide administrative decisions about organizational change and fidelity of staff performance are essential for quality improvement and program sustainability. These data systems should provide timely, valid information related to model fidelity for correlation with population outcomes data. Data reports should be useful and accessible to implementation teams that may include purveyors, administrators, supervisors, and staff. Data systems truly become decision support data systems by creating the conditions under which data can be understood and used to make timely decisions in order to improve implementation outcomes and target population outcomes (Bertram, Blase, et al., 2011).

Ideally, decision support data systems should be established or repurposed during stages of program installation and initial implementation. However, there is never a wrong time to do the right thing. In Year 4 of a 6-year funding opportunity, Houston's Systems of Hope engaged administrators, supervisors, and family members with an implementation consultant. Together they determined that their existing data system did not support or inform wraparound implementation. Organized to support legal requirements in child protective services, the data system provided no model-pertinent information about wraparound team composition and structure, about the thoroughness of multisystemic strengths and needs assessment, nor about the design, efficiency, or effectiveness of wraparound team interventions. Without timely model-pertinent case data to review, a risk containment supervisory focus had shaped staff to seek coaching primarily during case crises. This contributed to a long lag time before administrators or supervisors might discover the lack of model fidelity or effectiveness and was deemed to be a disservice to the consumer and an ineffective and inefficient means to develop staff knowledge and skills. Therefore, model-pertinent data forms that re-enforced revised training content and focused through wraparound's theory bases were developed and used in biweekly review by the consultant, administrator, and supervisors. These implementation reviews adjusted the focus and formats for regularly scheduled, individualized coaching. After 18 months this repurposing, revision, and consistent use of the Systems of Hope decision support data system combined with a related reorganization of training, coaching and leadership improved staff wraparound proficiency, model fidelity, and population outcomes (Bertram et al., 2014).

Conclusion

This article provides a historical marker of changes in NIRN implementation frameworks since 2005, examples of their successful application, and examples of the inefficiency and confusion that may ensue when they are not considered. If an organization carefully considers the intervention components of its program models, then thinks through the activities of each stage of implementation and the model-pertinent adjustments that must be made to implementation drivers, then benchmarks for model fidelity, implementation outcomes, and outcomes for the program's target population will more likely be achieved. As the first biennial Global Implementation Conference of 2011 transforms into a multidisciplinary, multitasked Global Implementation Initiative that reconvened in 2013, the use of these implementation frameworks will accelerate emergence of new knowledge and guidance for effective, implementation-informed services.

References

Addis, M. E., Wade, W. A., & Hatgis, C. (1999). Barriers to dissemination of evidence-based practices: Addressing practitioners' concerns about manual-based psychotherapies. *Clinical Psychology: Science and Practice*, 6, 430–441.

Agar, A., & O'May, F. (2001). Issues in the definition and implementation of "best practice" for staff delivery of interventions for challenging behaviour. *Journal of Intellectual & Developmental Disability*, 26, 243–256.

Barwick, M., (2011). Masters level clinician competencies in child and youth behavioral health care. *Report on Emotional and Behavioral Disorders in Youth*, 11, 32–39.

Barwick, M. A., Boydell, K. M., Stasiulis, E., Ferguson, H. B., Blase, K., & Fixsen, D. (2008). Research utilization among children's mental health providers. *Implementation Science*, *3*, 19.

Bertram, R. M. (2008). Establishing a basis for multi-system collaboration: Systemic team development. *Journal of Sociology and Social Welfare*, *35*, 9–27.

Bertram, R. M., Blase, K., Shern, D., Shea, P., & Fixsen, D. (2011). *Implementation opportunities and challenges for prevention and health promotion initiatives*. Alexandria, VA: National Association of State Mental Health Directors.

Bertram, R. M., King, K., Pederson, R., & Nutt, J., (2014). Program implementation: An examination of the interface of curriculum and practice. *Journal of Evidence-Based Social Work*, *11*, 193–207.

Bertram, R. M., Schaffer, P., & Charnin, L. (2014). Changing organization culture: Data driven participatory evaluation and revision of wrap around implementation. *Journal of Evidence-Based Social Work*, *11*, 18–29.

Bertram, R. M., Suter, J., Bruns, E., & O'Rourke, K. (2011). Implementation research and wraparound literature: Building a research agenda. *Journal of Child and Family Studies*, *20*, 713–726.

Blase, K., Van Dyke, M., Fixsen, D., & Bailey, F. W. (2012). Implementation science: Key concepts, themes and evidence for practitioners in educational psychology. In B. Kelly & D. Perkins (Eds.), *Handbook of implementation science for psychology in education: How to promote evidence based practice* (pp. 13–36). London, England: Cambridge University Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Bruns, E. J., Walker, J. S., Adams, J., Miles, P., Osher, T. W., Rast, J., & VanDenBerg, J. D. &National Wraparound Initiative Advisory Group. (2004). *Ten principles of the wraparound process*. Portland, OR: National Wraparound Initiative, Research and Training Center on Family Support and Children's Mental Health, Portland State University.

Chorpita, B. F., Bernstein, A., & Daleiden, E. L. (2008). Driving with roadmaps and dashboards: Using information resources to structure decision models in service organizations. *Administration and Policy in Mental Health*, *35*, 114–123.

Daly, A. J., & Chrispeels, J. (2008). A question of trust: predictive conditions for adaptive and technical leadership in educational contexts. *Leadership and Policy in Schools*, *7*. 30–63.

Denton, C. A., Vaughn, S., & Fletcher, J. M. (2003). Bringing research-based practice in reading intervention to scale. *Learning Disabilities Research & Practice*, *18*, 201–211.

Fixsen, D. L., Blase, K. A., Naoom, S. F., & Wallace, F., (2009). Core implementation components. *Research on Social Work Practice*, *19*, 531–540.

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).

Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (2009). *Multisystemic therapy for antisocial behavior in children and adolescents* (2nd ed). New York, NY: Guilford Press.

Heifetz, R. A., & Laurie, D. L. (1997). The work of leadership. *Harvard Business Review*, *75*, 124–134.

Heifitz, R. A., & Linsky, M. (2002). *Leadership on the line*. Boston, MA: Harvard School Press.

Hoge, M. A., Morris, J. A., Daniels, A. S., Huey, L. Y., Stuart, G. W., Adams, N., . . . Dodge, J.M. (2005). Report of recommendations: The Annapolis coalition conference on behavioral healthcare workforce competencies. *Administration and Policy in Mental Health*, *32*, 651–663.

Pecora, P. J., Reed-Ashcraft, K., & Kirk, R. S. (2001). Family centered services: A typology, brief history, and overview of current program implementation and evaluation challenges. In E. Walton, P. Sandau-Beckler, & M. Mannes (Eds.), *Balancing family centered services and child well-being* (pp. 1–33). New York, NY: Columbia University Press.

Schoenwald, S. K., Brown, G. L., & Henggeler, S. W. (2000). Inside multi-systemic therapy: Therapist, supervisory, and program practices. *Journal of Emotional and Behavioral Disorders*, *8*, 113–127.

Schoenwald, S. K., Sheidow, A. J., & Letourneau, E. J. (2004). Toward effective quality assurance in evidence-based practice: Links between expert consultation, therapist fidelity, and child outcomes. *Journal of Clinical Child and Adolescent Psychology*. *33*, 94–104.

Sternberg, K. J., Lamb, M. E., Orbach, Y., Esplin, P. W., & Mitchell, S. (2001). Use of a structured investigative protocol enhances young children's responses to free-recall prompts in the course of forensic interviews. *Journal of Applied Psychology*, *86*, 997–1005.

Walker, J. S., Bruns, E., Rast, J., VanDenBerg, J. D., Osher, T. W., Koroloff, N., Miles, P., & Adams, J., & National Wraparound Initiative Advisory Group. (2004). *Phases and activities of the wraparound process*. Portland OR: National Wraparound Initiative, Research and Training Center on Family Support and Children's Mental Health, Portland State University.

Wampold, B. E. (2001). *The great psychotherapy debate: Models, methods, and findings*. Mahwah, NJ: Erlbaum.

Waters, J. T., Marzano, R. J., & McNulty, B. (2003). *Balanced Leadership: What 30 years of research tells us about the effect of leadership on student achievement*. Aurora, CO: Mid-continent Research for Education and Learning.

Winter, S. G., & Szulanski, G. (2001). Replication as strategy. *Organization Science*, *12*, 730–743.