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Developing the Tools of Implementation Science in Substance Use Disorders Treatment: Applications of the Consolidated Framework for Implementation Research

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Abstract

The implementation of evidence-based treatments (EBTs) and practices (EBPs) depends on both top-down and bottom-up responsibilities. Many of the articles in this special section on Implementation Science in Substance Use Disorders address the interaction between these two approaches when implementing new substance use disorder (SUD) treatments. Generally the articles place this interaction within the Consolidated Framework for Implementation Research (CFIR), a relatively new and comprehensive synthesis of theories and conceptualizations of the components needed for any successful implementation strategy. The range of SUD treatments covered includes well-established behavioral interventions, such as screening and brief interventions for alcohol, as well as new pharmacotherapies, such as buprenorphine for opiates. One contribution uses the CFIR to review continuing care interventions and self-help groups that can follow-up after more intensive, acute clinical care. External and internal pressures for change drive implementation. The successful EBT/EBP implementations reviewed in these articles recognized all these potential change drivers in designing their strategy for introducing the EBT/EBP, and they modified aspects of the EBT/EBP to satisfy as many of these drivers as possible. The CFIR model has limitations, as do the contributions to this special section. The implementation science field is new and developing rapidly, and many of the EBTs and EBPs were developed and tested through controlled studies evaluating the efficacy of the interventions under controlled conditions, rather than examining their performance in the broader landscape of addiction treatment programs. These limitations may also be considered as boundary conditions that need to be explored in further research, implementation, and development of the next edition of the CFIR.

I. Introduction

The implementation of broader evidence-based treatments (EBTs) and more component-level practices (EBPs) depends on both top-down and bottom-up responsibilities. The top-down approach—involving strict adherence to evidence-based studies in order to maximize

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potential efficacy---can come into conflict with the bottom-up approach, which is concerned about the utility of these interventions to the providers, patients, and treatment programs. The articles in this special section frequently address the interaction between these two approaches when implementing new substance use disorder (SUD) treatments.

Generally the articles place this interaction within the Consolidated Framework for Implementation Research (CFIR), a relatively new and comprehensive synthesis of the various theories and conceptualizations of the components needing consideration for any successful implementation strategy (see Damshroder and Hagedorn, this issue). The CFIR also provides a set of evaluation guidelines for diagnosing why implementations fail, or are only partially successful, in order to guide subsequent efforts at implementation with particular EBTs or EBPs. These include five critical domains (Intervention Characteristics, Outer Setting, Inner Setting, Characteristics of the Individual, and the Process of implementation) that can be used to understand implementation efforts. Each domain also has several important constructs that are part of the framework.

The range of SUD treatments covered in these papers includes well-established behavioral interventions, such as screening and brief interventions for alcohol (Williams et al.), and new pharmacotherapies, such as buprenorphine for opiates (Gordon et al.). Studies implementing evidence-based behavioral treatments (EBTs) are reviewed by (Manuel et al.), as well as the extent to which EBTs are used in the field. The article by Lash et al. uses the CFIR to review continuing care interventions and self-help groups that can follow-up after more intensive, acute clinical care. Finally, Lehman et al. provide a useful set of instruments to assess the ideological environment and culture of a SUD treatment program and then review both frameworks for implementation (like the CFIR model) and program change approaches, such as the simpler model of plan-do-study-act.

The present article provides general commentary on this special section of the journal, reflecting on the specific contributions of the manuscripts as well as the issues they raise as we think about future implementation and research on the use of EBTs and EBPs in addiction treatment programs. In these articles and this overview the terminology of evidence-based treatments (EBTs) and evidence-based practices (EBPs) will both be used. The two terms are close in meaning, but several authors consider it important to distinguish them for addiction treatment settings. The term EBT refers to an intervention with a high degree of standardization and adherence to a comprehensive, manual-guided approach. It also is delivered for a relatively tightly specified period of time, such as twelve 30-minute sessions over a period of three months.

In contrast, EBPs are more discrete, flexible therapeutic techniques that may include components of EBTs. As smaller, less comprehensive approaches, they may be more readily integrated into a treatment setting and culture. For example “rolling with resistance” is a practice used in the EBP of motivational interviewing (Miller & Rollnick, 1991). As an illustration, in an interview the woman client in an alcohol treatment program indicates she is 60% likely to drink in the next day. The counselor, rather than trying to talk to the client into being more optimistic about staying abstinent, rolls with the resistance and asks “Why wouldn't you say 90% likely?” This leads to the client discussing the factors that support her not drinking, rather than arguing with the counselor that she is really likely to drink. Instead of challenging a client's viewpoint the counselor uses the client's momentum to explore the client's views.

Rolling with resistance, like other EBPs, can be implemented by a counselor in a treatment program without attempting the more comprehensive EBT. In fact, Read, Kahler, and Stevenson (2001) contend that it may be better to implement EBPs rather than EBT

packages. However, even EBPs may need individual modification for the setting in order to be adopted within the existing treatment program. Specifically, the 12-step, self-help foundations of many treatment programs and their counseling staff, who may have recovered themselves from addictions using a 12-step approach, often will reject an EBP that appears to follow a quite different conceptualization of treatment. One example of culture conflict is introducing a medication, such as buprenorphine for opiates, into a drug-free abstinence-oriented outpatient program. Thus, successful implementation efforts might need to use one or more EBPs rather than an EBT, and be capable of adapting the EBP in order to assure some measure of program adoption.

II. Discussion of Articles (Reactions, Perspectives)

The article by Damschroder and Hagedorn provides a useful primer and review of how models of implementation science have developed. They emphasize evidence that implementation research, rather than leaping forward, may be stalled. They point out that in the decade after the IOM report on bridging the gap between practice and research in substance abuse (Lamb, Greenlick, and McCarty, 1999) only ten studies of SUD treatment implementation had appeared (Garner, 2009). One of the barriers is that different models for scientific progress in this area do not consider the same factors, which can perpetuate a “silo approach” to implementation research. With different models studying different outcomes and labeling the process or mediating variables differently, the terminology itself becomes incompatible across models. Thus, a more integrative overview needs to gain purchase in the field to unify these apparently divergent formulations of implementation science. The CFIR is hoped to provide such a unifying overview for guiding future developments in terminology for mediating and process variables in this field's demonstration programs. The CFIR also allows descriptions of the degree that change is directed from the top or emerges from the bottom of the program hierarchy.

One of the important themes of the CFIR work is that implementation strategies need to be chosen to fit the context of the sites where they will be implemented, and we do not know enough about how to accomplish this matching of EBT/P elements with site characteristics. On the other hand, a potential drawback of the model is its complexity. In the Damschroder and Hagedorn article, Table 1 points to ways in which three major models of the diffusion of EBT, those of Greenhalgh et al (2004), Simpson and colleagues (Simpson & Flynn, 2007; Simpson & Dansereau, 2007), and Rogers, 2003), map to the CFIR model. There are five topics and nearly forty descriptors in the CFIR model. Its complexity, while useful in differentiating aspects of diffusion, may also lessen its utility to innovators needing simpler answers to simpler questions.

The article of Williams et al. applies the CFIR model to a widely-respected EBT, alcohol screening and brief intervention (SBI) to reduce drinking in primary care patients who drink too much alcohol. The authors conducted a literature review and identified eight studies with sufficient information to retrospectively examine how well the CFIR model fit. As a general comment, the implementation reports addressed all five domains of the CFIR in implementing SBI. All of the implementation reports addressed the Inner Setting domain, including such constructs as providing Access to Knowledge and Information, Incorporating local Goals and providing Feedback, and Leadership Engagement. In fact, the program with the highest rate of screening addressed more of the Inner Setting domains than any of the other implementation programs. The article contributes to our understanding of the importance of addressing Inner Setting domains, and it points to a need for future research regarding the relative importance of all five domains of the CFIR. It is regrettable that the review could not make more conclusions about the elements of the CFIR that are most important to implement SBI, which may reflect either a limitation of the model or the early

stage of this area of study. The analysis also addressed whether the implementation was seen as internal or external to the organization (Characteristics of the Intervention). Outer Setting issues involve external mandates to undertake such interventions, and Process of Implementation issues involve the degree to which formally appointed internal or external leaders were used.

The Gordon et al. article is unusual in this collection in that, rather than applying the CFIR in its analysis, it used grounded theory (Strauss & Corbin, 1990). Grounded theory is an approach to understanding qualitative data that, rather than applying a theoretical framework (such as CFIR) to a data set, instead uses categories developed inductively from a body of data. The research team examined provider-, facility-, and system-level barriers and facilitators to implementing buprenorphine among 17 Veterans Health Administration (VHA) programs with varying levels of buprenorphine administration, from none to over 40 prescriptions. These three levels may correspond to Characteristics of Individuals, Inner Setting, and Outer Setting topics in the CFIR model, although this connection is not clearly stated in the manuscript. Thus the paper does not really make much of a direct contribution to application of the CFIR model. The results, however, are interesting and useful: The study revealed great variability in the perceptions, among the 62 people interviewed, about the facilitators and barriers of implementing buprenorphine care. The diversity of views suggests that the VHA system would do well to adapt implementation approaches from a broad menu of possible options in order to address the specific needs of each facility. An interesting dimension is that, even in an organization that utilizes a primarily “top-down” approach to change, a key facilitating factor is having a physician or other staff member who can “champion” buprenorphine at many sites.

Manuel et al., in an outstanding and comprehensive contribution to the state of the art for this field, conducted a systematic review of 21 studies that attempted to measure implementation of EBTs. Their table describes these studies in some detail, allowing a reader to understand the scope of existing research and its findings. They point out that most of the studies have focused at the individual level (for example, training counselors) rather than on implementation at the organizational level. Also, very few implementation studies have used a conceptual model to inform their implementation strategies. Without such a conceptual model it becomes difficult to precisely identify elements that may have enhanced or impeded successful implementation of the specified EBT, since a comprehensive assessment of these elements is not undertaken. They argue that the probability of adoption and implementation is greater when the whole agency is the focus, rather than changing individual providers. They also point out that the implementation studies tended to depend on provider ratings of their acquisition of new skills and knowledge rather than measuring client behaviors or outcomes, and some of the studies found little relationship between provider ratings and provider behaviors.

Evaluation of training seems a crucial issue because psychosocial interventions are often complicated and the level of fidelity to the original intervention that is required is a vital issue. The authors also point out that it may be more effective to implement training in the specific processes or EBPs rather than to attempt implementing the larger treatments (EBTs). The results of the Manuel et al. review also correspond to the findings of Williams et al. described above, in that all of the SBI research they examined addressed the Inner Setting domain of the CFIR. It may be that the inner setting is most often addressed in the current dissemination studies, perhaps because that is viewed as most crucial by innovators, or because it is perceived as the easiest for an innovator to change.

The article by Lash et al., similar to the Williams et al. contribution, applied the CFIR model, but in this case it reviewed continuing care following initial treatment for substance

disorder treatment, as well as mutual help-group (MHG) interventions. They point out that, despite broad-based evidence of effectiveness, the implementation of continuing care and MHG approaches has been seldom studied. This is a well-organized paper, systematically discussing continuing care interventions, the sub-group of MHG interventions, and how the studies in each area map against the many dimensions and sub-dimensions of the CFIR. One of the findings in this area is that the most frequent findings on factors related to continuing care implementation were found within the CFIR's "outer setting" domain. This is logical given the extensive networking that accompanies continuing care interventions and raises a research question about the degree to which the types of interventions will dictate the salience of different CFIR domains. To some extent the paper's ambitious scope dilutes the focus on the applicability of the implementation model; the paper presents the evidence supporting continuing care and MHG participation, perhaps more than it explores the utility of the CFIR model. Yet it identifies important issues about the relative advantages of various EBPs in comparison to each other on which more research is needed.

The paper by Lehman, Simpson, Knight, and Flynn from Texas Christian University (TCU), reviews a specific set of tools for implementing changes within SUD organizations. It also describes instruments to assess the ideological environment and culture of a SUD treatment program. An important concept, which evolved from a careful review of implementing EBTs within SUD treatment programs, is that SUD treatment providers are often ideologically committed to a particular treatment approach. Introducing a new EBT/P to providers with an ideological commitment usually requires a collaborative, bottom-up approach that differs from simply adding a new technique to a broadly eclectic treatment program. Assessing the ideological environment and culture can be essential first steps to facilitate the introduction of an EBT/P into an existing program, because the new treatment or practice may conflict with this culture and ideology. When such a culture/ideology conflict exists with the new EBT/P, a top-down approach almost certainly will result in implementation failure. The Lehman et al. contribution also provides a useful review of both frameworks for implementation (like the CFIR model) and program change approaches, such as the simpler model of plan-do-study-act (Demming, 1982) that is used in the innovative NIATx program (Network for Improving Access to Treatment; McCarty et al, 2007).

An EBT/P needs to have Trialability as well as Adaptability in the terminology of the CFIR model. The champions of the new EBT/P will need to expend significant effort finding the commonalities between the EBT/P and the existing organizational environment before engaging in detailed staff training in the new approach. Readiness for implementation also requires that the CFIR-defined Inner Setting have local leadership engagement, agency administrative support, and ongoing supervision to address and resolve provider conflicts. These conflicts can include conflicting time demands in trying to use the new EBP. However, even very high provider motivation to learn and use a new EBT/P will not overcome some types of inner-setting barriers, such as insufficient resources and time to utilize, refine, and truly integrate the new EBP into the provider's daily practices.

Organizational climate operates at a higher level of abstraction and requires a higher level of intervention than simple training or follow-up for the EBT/P to be successfully adopted. Organizational climate barriers include lack of staff awareness of the agency's mission and goals, poor trust and cooperation among the workgroup members, staff feeling little freedom and latitude in doing their jobs, inadequate information sharing without bi-directional leadership interactions, workers' perceptions that the agency is not open to change, and (associated with this type of climate) perceived stress and role overload. These barriers will require a longer-term intervention to change the organizational climate before a new and truly helpful EBT/P can be successful.

III. Ideas for the Future

Implementation

External and internal pressures for change are what drive implementation. Their sources range from external regulatory and funding pressures to internal local leadership or treatment staff pressures to address areas of patient functioning that are not being improved with current treatments. The successful EBT/P implementations reviewed in these papers recognized all these potential change drivers in designing their strategy for introducing the EBT/P, and then they modified aspects of the EBT/P to satisfy as many of these drivers as possible. After training in the appropriately modified EBT/P, follow-up assessments need to check for new barriers, which were not initially evident before introducing this change. New barriers can be components of institutional resources, staff attributes and organizational climate. While difficult institutional barriers, such as too few staff, insufficient office space, and lack of computer equipment or Internet access are readily identified during the initial design, other barriers often become evident only after introducing the EBT/P training. These more subtle follow-up institutional barriers might be an inability to schedule sufficient staff training, poor staff confidence in their agency leaders, or staff feeling excluded from the decision making process for introducing the EBT/P. When attempting to integrate an EBT/P into a program in a clinical setting, staff attributes often are not sufficiently ascertained, but they can be serious barriers when they include low job satisfaction, poor adaptability to change, low confidence in professional skills, little value for job growth, and few staff interactions enabling sharing and mutual support. These staff attributes will require serious attention through motivational interventions, structural reorganization and potentially staff removals and hiring of some new staff. Without these types of more fundamental program changes, new EBT/Ps will not be established or grow.

We are early in the development of implementation science and the authors' impression is that the few studies extant are focusing on initial implementation of EBT/Ps, rather than their maintenance. The article by Gordon et al. focusing on the Veterans Health Administration points to the need for ongoing monitoring systems to track the provision of specific interventions at facilities. The development of such systems may be boosted by the increasing development of electronic medical records systems, but understanding how to develop new and apply existing program monitoring systems to the maintenance of EBT/Ps is an important task for both implementation research and continuous quality improvement in clinical programs. This type of quality improvement will reduce errors and produce a safer patient environment, along with improved staff morale and pride in their work.

The TCU instruments and processes, summarized by Lehman et al., intersect well with the CFIR model for implementation science. The TCU processes provide an outline for successfully introducing new EBT/Ps within a broad range of the typical situations encountered among SUD programs in the public and private sector. Data from the TCU instruments have been accumulating over several years and may at some point provide a very useful catalogue of implementation challenges and solutions for systematic searching.

Advances in implementation science, however, will be most important for those areas where the current TCU tools do not provide obvious solutions and for which the CFIR model can help in identifying potential barriers and facilitators of organizational and provider change when implementing EBT/Ps. The contribution by Damschroder and Hagedorn implies that these to-be-developed areas might include such topics as: 1) within the Intervention Characteristics construct, measuring the Intervention Source; 2) within the Outer Setting construct, addressing Peer Pressure from competing agencies, as well as measuring External Policies and Incentives to make change; 3) within the Inner Setting construct, describing Structural Characteristics, organizational Culture, and measuring the Relative Priority (the

reward system for using the intervention); 4) within the Characteristics of Individuals area, assessing the Individual Stage of Change and other personal attributes that might impact staff's openness to change; and 5) within the Process area, further understanding the degree in which one is Engaging Internal Implementation leaders, Champions, and External Change Agents and Executing the planned change.

Research

Damshroder and Hagedorn provide a useful framework for the development of research in this area. The idea that core versus adaptable components of interventions need to be differentiated can spawn a line of research that will yield rich benefits, both to implementation research and to the models for adapting EBT/Ps to culturally-specific groups. These authors also advocate for developing predictive research models that take into account not only introducing or implementing EBT/Ps, but also sustaining them in diverse clinical settings.

An additional need is for improved measurement. Manuel et al. note that organizationally-focused implementation studies often have indicated whether or not "adoption" of a therapeutic intervention in a program occurred. The reality is that adoption is a matter of degree. It is seldom that a program offers a specific EBT/P to all its clients; a more typical adoption pattern may involve slowly integrating parts of an EBT among specific staff or with selected patients. Additionally, as Damschroder and Hagedorn point out, there is a need for common definitions of terms, common understanding, and common measures, rather than a series of studies using measures that cannot be reconciled.

One unanticipated research direction comes from the report of Williams et al. They indicate that the CFIR was useful in the implementation of both alcohol screening and brief interventions. However, the strategies needed to implement the screening differed substantially from those needed to implement the brief intervention. This differentiation implies that the goal of Damschroder and Hagedorn, to identify core versus adaptable components, may run into unanticipated complications because the EBPs themselves are complex and diverse.

Not surprisingly, some of the most complicated interventions may be among the least studied. Lash et al. point out that, when it comes to publishing implementation studies, both continuing care models and MHGs have been under-studied relative to some less ambitious, more strictly defined EBTs. Likewise, despite the broad effects of continuing care models, there have not been many studies that focus on external funding and organizational policies to make continuing care EBPs available broadly in addictions treatment. There is a clear need for more research and better-targeted funding in these areas.

Implementation of psychosocial interventions, due to their complexity, will be a more complicated task than implementing primarily biological interventions, such as pharmacotherapy, where the standards for drug development and marketing are more clearly established. Yet the administration of medications is also a human process that depends on adherence to taking the medication, not just simply prescribing it. Good adherence in the addictions field results from a complex mixture of medication characteristics, such as frequency of dosing (three times daily versus a monthly injection), counselor-prescriber interactions, and mutual support for the necessity of the medication for recovery. Many other specific adherence factors have been described, such as avoiding poly-pharmacy and multiple providers of medications, low co-pays for medications from managed care, social supports from family or significant others to reinforce adherence, and simple regular reminders by phone, email, text message or personal contacts in day programs. As the article by Gordon et al indicates concerning adoption of buprenorphine, there is a plethora of

barriers, varying by sites, that has little to do with the quality of medication and much to do with patient and provider attitudes and information, regulations, dysfunctional systems of care, and difficulties with support from administration or pharmacy.

IV. Concluding Comments

While the articles in the issue provide outstanding examples of successful implementation efforts, many projects designed to implement a new EBP are not so successful and do not get published. Two recent attempts at implementation in SUD provide good examples of unsuccessful implementations that would have benefited from more attention to formative evaluation which should be an integral part of any implementation study (Stetler et al., 2006). These two studies serve as examples of how implementation failures can be “autopsied” in terms of the CFIR model.

Example 1: Contingency Management to Reduce Smoking in Mental Health Clinic Patients

The first pilot study example illustrates a flaw in treating patients with schizophrenia within their own clinic in a 12-week implementation study of smoking cessation. A similar approach to smoking cessation in post-traumatic stress disorder (PTSD) had been quite successful in a large multi-site study recently completed in the VA (McFall et al., 2007). In that study the mental health staff in PTSD clinics were trained to deliver a DHHS-endorsed smoking cessation treatment (US Department of Health and Services, 2000). Providers who typically treated patients with schizophrenia were trained in contingency management (CM) in order to apply this EBP to smoking cessation in their patients. CM has shown extensive success for a wide range of SUD, including smoking, and for a range of behaviors in patients with schizophrenia, including some types of SUD (Higgins & Silverman, 1999).

This pilot schizophrenia study delivered the treatment in the mental health clinic itself, and half of the patients were randomized to receive \$10 in canteen vouchers for each week of reduced smoking. The other half of the patients received only verbal encouragement, but no vouchers. The first lesson learned was that targeting CM to reducing or stopping smoking often led to patients' never getting any of the rewards of CM, because they never were able to reduce their number of cigarettes. While all participants wanted to stop smoking, they wanted to delay their “quit date” for another week at each weekly session. Thus, they never set a quit date and received no rewards from CM. Treatment retention was poor. The contingency then was shifted to receiving a voucher (or encouragement) for simply attending the treatment, and retention improved. Thus, CM can enhance participation in a smoking reduction intervention, but smoking may have a much more complex social and potentially self-medicating function for patients with schizophrenia that does not allow the high success rates for CM in reducing cigarette consumption that was found among individuals PTSD. Since two different sites had very similar results, implementing CM directly for smoking reduction was considered a failure for this population in this setting and not further pursued.

This experience can be analyzed using the CFIR model. The intervention was applied based on experience with a PTSD clinic in a different setting; from the CFIR model viewpoint it could be the Intervention Characteristics were different: The CM may have had fewer Relative Advantages when applied to patients with schizophrenia than it had with PTSD patients, or the intervention may have not had sufficient Adaptability in the new setting. The Outer Setting situation may have been different, with different Patient Needs and too much Peer Pressure to implement CM without sufficient pilot testing.

Example 2: Seeking Safety with SUD and PTSD Patients

The second example illustrates a flaw in selecting or preparing the larger organization for an implementation study of training in a new EBT, Seeking Safety (Najavits, Weiss, Shaw, & Muenz, 1998), for patients with both SUD and PTSD. A single set of trainers planned to train providers at 12 sites over a two-year period. Site staffs were all given a two-day didactic training in the EBT, including small group supervised experience in conducting the treatment. All trainees were volunteers who expressed specific interests in this EBT and had completed pre-training assignments, further indicating their high motivation for learning and using this EBT. Half the sites were assigned to receive training enhancements. The enhancements included coaching and academic detailing, with six monthly conference calls for case presentations and consultation on an as-needed basis during the times between the monthly group calls. The other half of the sites did not receive the follow-up intervention.

An interim analysis after training six sites and following them for three to four months indicated problems with documented utilization of the EBT in these sites and with participation in the enhanced component of this implementation study. The bottom-up support for this EBT from the PTSD and SUD treatment teams and their patients came into conflict with the administration's top-down need for documentation of strict adherence in implementing this EBT. The administration's rationale for such adherence was the need to maximize potential efficacy of the EBT, but strict adherence conflicted with the needs of individual sites for trialability and flexibility in using the EBT. This trialability also required a time commitment from the administration for the monthly conference calls and individual case consultations, which program administrators did not consider a reasonable allocation of service delivery time after the formal training in the EBT was completed. Thus, both bottom-up and top-down support was initially evident for the EBT, but the initial model of implementation had not anticipated this emergent administrative barrier. The interim analysis took this barrier into consideration and redesigned the organizational (administration) entry criteria for sites before enrolling more sites and continuing the study.

This illustration has many ties to the CFIR model. The Characteristics of Individuals included strong staff Knowledge and Beliefs about the Intervention. However, at the Inner Setting level, the clinic management's Implementation Climate did not include commitment to monthly conference calls and consultations after the initial training occurred. As noted in the description, there was also a conflict between need for intervention fidelity (thought to maintain the Relative Advantage of the intervention) and intervention Adaptability and Trialability (thought to be important in applying the intervention appropriately). In the CFIR domain of Process, there was, fortunately, enough time for Reflecting & Evaluating, so that the implementation process could be redesigned to take these experiences into account.

Model Shows Promise

The CFIR model provides useful improvement over the previously existing models. It consolidates a range of constructs that have been used to describe implementation, providing a comprehensive organizational system that can help to guide implementation efforts as well as implementation studies in the future. As noted above, the article by Damschroder and Hagedorn makes direct comparisons between the CFIR and several theories that are used in describing implementation (Greenhalgh, et al 2004; Simpson & Flynn, 2007; Simpson & Dansereau, 2007; Rogers, 2003). As pointed out by Lehman et al. in this Special Section, the CFIR consolidates ideas from several models, providing the field with a central framework and a rather comprehensive collection of constructs that can be used. That paper's discussion of program change models can be useful, as it reviews simple models such as plan-do-study-act that can be more prescriptive for a change agent, rather than providing a general overview. The CFIR framework, however, does not take readers to the next step and

describe the interrelationship of these factors or how innovators can use them to build steps toward a model of implementing evidence-based interventions into practice. It may be best to view the framework as a tool set, rather than a blueprint for change.

For the two pilot study examples we described earlier, consideration of domains in the CFIR might have pointed to potential problems at the outset, rather than after the studies were in progress. As indicated in those two examples, the ongoing formative evaluations are critical components of any implementation study, but the chance for successful implementation may be markedly improved from the start by application of the CFIR model and attention to its comprehensive overview of implementation barriers and facilitators.

The CFIR has potential to shed light on the “top down” versus “bottom up” controversy mentioned at the beginning of this article. It can be used to describe the degree to which change impetus comes from above a program (the Outer Setting in the CFIR) or from within the program (Inner Setting), as well as understanding the importance of the characteristics of individuals and of implementation processes, such as engaging external change agents and having local site champions.

Much to be Learned

Using the CFIR will not completely solve problems in the communication of implementation science findings across disciplines or adoption of its findings in more general clinical practice in large organizational programs, such as the VA Health Administration. For example, articles in this special issue point out that many EBTs are more complex than the framework reflects. Implementation processes themselves also are not homogeneous, and they involve a considerable number of steps to be completed. As Manuel et al. point out, studies of implementation also tend to over-state the effectiveness of the EBT/EBPs that they study, due to design features that more closely resemble efficacy than effectiveness research. The considerable diversity in treatment settings, as well as in EBT/Ps, also may not be sufficiently reflected in the scope or specificity of the CFIR model in order for it to be the ultimately most useful tool. Since the CFIR model is new, we do not yet know how consistently it will be applied in the field, but we hope that it will survive long enough to provide a critical way-station that will take us to another model consolidating this one as research knowledge accumulates.

These limitations may also be considered as boundary conditions that need to be explored in further research, implementation, and development of the next edition of the CFIR. Meanwhile the model shows promise. As demonstrated in several of the papers in this special issue, the model can be useful in systematically describing implementation research findings for a wide variety of clinical areas in the addictions field. This issue itself provides a contribution to our knowledge of implementation science, and the articles within the issue supply provocative ideas about the need for further implementation development and research.

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