Abstract

Systematic evaluations of efforts to transfer research-based interventions and procedures into general practice at community drug treatment programs have been limited. However, practical experiences as well as results from studies of technology transfer and organizational behavior in related fields provide a basis for proposing a heuristic model of key factors that influence this process. The successful completion of four stages of activity typically involved in program change (exposure, adoption, implementation, and practice of new interventions) appears to be influenced by several organizational considerations (e.g., institutional readiness for change, resources, and climate) as well as staff attributes. Assessment instruments for measuring organizational functioning (based on ratings aggregated for staff and patients in a program) are introduced, along with preliminary evidence for their validity. A better conceptual understanding of the process of program change and common barriers that may be encountered is needed for effectively transferring research to practice.

1. Introduction

Although “change” at both the personal and organizational level is constant and universal, making it intentional and positive requires attention. This is especially true at the organizational level, which incorporates the collective attitudes, actions, and relationships of a group of individuals. The subject addressed in this article — program-level change in the delivery of drug treatment — is only part of a much larger enterprise involving technology transfer. “The Change Book” (Addiction Technology Transfer Centers, 2000) describes general principles and procedural steps required, from strategic planning to evaluation of results, for this broader process of impacting service systems as well as policy. Indeed, a national treatment plan for improving the substance abuse treatment field (Center for Substance Abuse Treatment, 2000) highlights changes needed in relation to patient access to services, social attitudes about addiction and treatment, using science-based evidence to enhance services, and workforce issues.

Transferring treatment research to practice is a limited (but crucial) application of technology transfer in the addictions field (Brown, 2000). In an effort to create a conceptual framework for changing programs in how they deliver treatment, this article begins with a review of related research and recommendations found in the literature. Of particular value is work conducted in the fields of mental health (Christianson, Taylor, & Knutson, 1998; Corrigan, Steiner, McCracken, Blaser, & Barr, 2001; Salasin & Davis, 1977), alcoholism (Read, Kahler, & Stevenson, 2001), and organizational behavior (Klein & Sorra, 1996). Guided by the assumption that efforts to train program staff how to improve treatment and patient outcomes should build on what is known about how treatment works, a process model of the core therapeutic components related to patient-level change is briefly summarized. It is the culmination of our long-range treatment outcome research strategy (see Sells, Demaree, Simpson, Joe, & Gorsuch, 1977) and serves as a cornerstone for the development of a process model for “program-level change,” presented as a heuristic for illustrating the basic steps followed in transferring new strategies for improving treatment. Extraneous factors that influence this process also are considered, reflecting key findings from the literature, and a set of assessment instruments are presented to help operationalize these concepts into practical use. Other studies such as those included later in this special
section are expected to help revise and refine our understanding of the technology transfer process.

2. The need for transferring treatment research to practice

A recent report from the Institute of Medicine (Lamb, Greenlick, & McCarty, 1998) discusses the widening gap between scientific knowledge and practice of drug abuse treatment in community-based settings, and the negative implications of not merging science and practice. It includes a series of recommendations for strategies by federal and state agencies that should help facilitate the transportation of evidence-based treatment innovations into the real world. In general, these recommendations call for: (1) research in which community treatment agencies are involved as collaborators and planning partners; (2) better monitoring systems of treatment delivery and outcomes; (3) more knowledge about how “technology transfer” occurs, taking into account the structure of treatment systems and the diversity of patients and providers; and (4) more effective dissemination and training strategies for implementing innovations.

These efforts come at a time when patient needs for services appear to be increasing but the general availability of comprehensive services (especially for medical and psychological problems as well as social support needs) is shrinking (D’Aunno & Vaughn, 1995; Etheridge, Craddock, Dunteman, & Hubbard, 1995). Research shows an adequate level and duration of services are the main factors found to predict treatment effectiveness (De Leon, 1996; Fiorentine & Anglin, 1996; McLellan et al., 1994; Simpson, Joe, & Brown, 1997; Simpson, Joe, Dansereau, & Chatham, 1997; Widman, Platt, Litz, Mathis, & Metzger, 1997). It also is becoming clearer that the severity of patient needs when entering treatment is related both to the length and type of treatment required for improving outcomes (Hoffman et al., 1996; Rawson et al., 1995; Simpson, Joe, Fletcher, Hubbard, & Anglin, 1999; Thornton, Gottheil, Weinstein, & Kerachsky, 1998). “Practice,” on the other hand, is being heavily influenced by managed care and similar economic pressures to abbreviate and curtail services, sometimes without giving adequate attention to problem severity and long-range needs of patients. Therefore, transferring “knowledge to practice” in the real world can be viewed as adding even greater pressure to do more with less.

Technology transfer studies in the drug treatment field have not advanced much beyond basic efforts focused on dissemination methodology, involving comparisons of the relative success associated with different strategies of delivering materials to programs and providing training to staff. For instance, a dissemination study of “job-seeker” employment services (Hall, Sorensen, & Loeb, 1988; Sorensen et al., 1988) showed while using even the most intensive training (i.e., consultative and personalized on-site), 72% of programs still failed to implement the full protocol. With general workshop training, the transfer failure rate was 81%, and with manuals alone, it rose to 96%. Partial applications were more common, however, suggesting the importance of addressing program needs and barriers (such as organizational and contextual considerations) that influence adoption and use. Indeed, Martin, Herie, Turner, and Cunningham (1998) found using a dissemination model based on social marketing principles improved the transfer of addiction treatment interventions to outpatient programs. That is, after targeting the types of programs considered most likely to adopt these new interventions (using a labor-intensive “market analysis”), over two-thirds of the agencies that completed their training workshops adopted the intervention within the following year.

Because the drug treatment field could benefit from a more systematic approach to improve its success in transferring technology from research to practice, it is helpful to examine the literature from other areas. Backer (1993) points out that increasing the use of knowledge to solve human problems has a long history and goes by many names, including technology transfer, information or research utilization, innovation diffusion, and organizational change. Contemporary American applications include diffusion of agricultural innovations (1920–60), utilization of defense and space-related research (1960–80), and improvements in health, education, and human resources (1980-present). The literature, Backer says, identifies four conditions required for technology transfer to be effective: (1) appropriate innovations must be brought to the attention of organizations and be made accessible for dissemination; (2) evidence must show use of the innovation is feasible and effective; (3) resources must be adequate; and (4) interventions must be provided that encourage individuals and organizations to change (Backer, 1993). Similar issues are discussed by Fairweather, Sanders, Tornatsky, and Harris (1974), Fixsen and Blasé (1993), and Lamb et al. (1998, p. 40–51), and accumulated experience from research on “diffusion theory” (Rogers, 1995) offers comparable observations. From the perspective of a social learning model, these efforts are seen as a sequential process whose success depends on a variety of attitudinal influences and organizational decisions about the utility of innovations being targeted for transfer. Critics emphasize the need to examine the transfer process from a broader perspective, taking into account motivational issues, barriers to adoption, and characteristics associated with successful adoptions.

Brown (2000) observes that traditional methods for dissemination of scientific information involving publications or conference presentations are designed primarily to serve the interests of researchers. Technology transfer, however, is a much more complicated process since it focuses on efforts “to induce change in programming or policy formation.” In 1987, for example, public health concerns prompted the National Institute on Drug Abuse (NIDA) to initiate efforts to develop and disseminate HIV risk reduction interventions for drug treatment settings as well as for community outreach.
programs seeking out-of-treatment drug users. Brown (1995) points out how important it was to broaden the focus beyond training per se to address relevance, timeliness, clarity, credibility, replicability, and acceptability of research findings in making these efforts more successful. Thus, merely making new science-based counseling innovations and training manuals available through conferences or newsletters that target appropriate general audiences (e.g., state drug abuse authorities and program representatives) is only the first step in this complex process.

3. The influence of organizational attributes

There is growing consensus that problems in transferring research to practice are more likely to be due to organizational factors (e.g., leadership attitudes, staff resources, organizational stress, regulatory and financial pressures, management style, tolerance for change) than how materials are disseminated (Backer, David, & Soucy, 1995; Rosenheck, 2001). For instance, an organization with high resources and high commitment to acquiring new skills might be expected to respond more positively to self-training manuals or conference-based workshops than an organization with low resources and low commitment. But those programs most reluctant to change are often the most appropriate “targets” of efforts to transfer new technology. Rogers (1995) observes there is a common temporal pattern in the change process, and the more venturesome risk-takers and strong leaders begin the changes and influence others as change agents. For instance, about 15% tend to be “early adopters” of innovations, and they are soon followed by an “early majority” (34%). The other half tends to be much slower in adopting change, especially if they have few resources and tend to be reactionaries (16%).

The influence of leadership attributes—both formal and informal—on organizational change has been largely neglected in the transfer of drug treatment innovations. Judge, Thoresen, Pucik, and Welbourne (1999) have focused on leadership traits related to organizational change in business by assessing psychological attributes of managers in a multinational sample of large organizations that had undergone significant change. A large array of measures was reduced to two general characteristics of managers (i.e., risk tolerance and positive self-concept) that were most predictive of employee acceptance of major organizational transition. Similar conclusions come from research on social cognitive theory and self-efficacy by Bandura (1997) and the theory of reasoned action by Fishbein (1995). Both stress the role of personal traits as determinates of behavioral change. Fishbein lists eight variables considered as the major attributes represented in the most widely cited behavioral change models. Three of these traits (intention [commitment], skills, and absence of environmental constraints) are the principal factors that determine behavior change, while five others (attitudes, normative pressures, self-image, emotional reactions, and self-efficacy) are viewed as primarily influencing the direction and strength of intentions.

Backer, Liberman, and Kuehnel (1986) discuss how counselors deserve more attention as potential barriers to the adoption and maintenance of treatment innovations. They carry the front-line responsibility of interpreting and converting research findings into practice; but nationally, only about half have college degrees. Along with low average pay and high “burnout” rates, these factors create a difficult environment for implementing and maintaining new ways of doing things (Brown, 1997). Backer and colleagues note further that counselors are most likely to view an innovation as being relevant to their needs when they: (1) understand there is empirical support for it; (2) see it demonstrated; (3) have discussions about its relative advantages over existing practices; and (4) help plan how and when it will be adopted (“felt ownership”). (Backer, 1988; Backer et al., 1986). For instance, the effective dissemination of psychosocial interventions in mental health programs requires early contact with credible peer leaders within the organization as well as continued consultation and technical support to help guide the organizational change process. In addition, Backer recommends grooming of influential supervisors and counselors to promote the counseling innovation from within the program, along with an openness to procedural adjustments for field implementation (rather than rigid insistence on using the intervention under a strict clinical protocol).

Research on organizational behavior and change therefore suggests personal attributes of program leadership and counselors need to be considered along with organizational climate and institutional resources in studies of innovation utilization. However, systematic efforts to develop assessments to capture these measurement constructs have been scarce, and technology transfer models for substance abuse treatment are seldom evaluated empirically. Early work by Salasin and Davis (Davis & Salasin, 1977; Salasin & Davis, 1977) emphasized similar needs in conducting evaluations of community mental health programs, especially as part of an assessment on “readiness for organizational change.” In his opening chapter of NIDA’s technology transfer monograph, Backer (1995) agrees readiness for change represents one of the areas most neglected in this field of study. More specifically, “readiness assessment and enhancement must become a regular part of technology transfer interventions” (p. 36). This runs parallel in many ways to recent research on “patient readiness for change” and evidence showing it to be a key predictor in treatment process-to-outcome modeling studies (De Leon, Melnick, & Tims, 2001; Simpson, 2001; Simpson & Joe, 1993).

4. Understanding how treatment works

A major premise in efforts to transfer treatment technology is that it should be “evidence-based.” Lamb et al. (1998) and Read et al. (2001) have reviewed research find-
ings and found several treatment strategies that merit transfer to community substance abuse treatment programs. These include psychosocial interventions with cognitive and behavioral foundations (such as contingency management and treatment engagement techniques) that are generally consistent with the 13 principles of effective treatment advocated by National Institute on Drug Abuse (1999). Not only should there be scientific evidence for the effectiveness of particular interventions transferred, but interventions also should be integrated into a general framework that indicates their unique purpose and when they should be used. Several studies of nation-wide samples have demonstrated the effectiveness of drug abuse treatment in naturalistic settings and the importance of retention (Hubbard et al., 1989; Simpson, 1979, 1981; Simpson & Brown, 1999; Simpson & Curry, 1997; Simpson & Sells, 1982). In the last 10 years, a body of research focused on formulating a model of effective drug treatment has been assembled for integrating findings about how program characteristics as well as patient attributes influence the degree to which patients become engaged in treatment and remain long enough to show evidence of recovery at follow-up (see Joe, Simpson, & Broome, 1999; Simpson, 1997, 2001; Simpson, Joe, Dansereau, & Chatham, 1997). This “treatment process model” also portrays how specialized interventions as well as health and social support services promote stages of change. Although counselor attributes and skills likewise appear to impact the patient engagement process (e.g., Joe, Simpson, Dansereau, & Rowan-Szal, 2001; Simpson, Joe, Rowan-Szal, & Greener, 1995), organizational factors are complicated and need additional research attention.

D’Aunno and Vaughn (1995) propose that several organizational processes help account for the link between the organization and the services it delivers. One is “task contingency,” which leads organizations to adapt services to the needs of their current patient base. As patient needs change, for instance, effective organizations tend to adjust their mix of services and adopt innovations. Another process relevant for technology transfer involves the tendency for organizations to change services to make them consistent with their predominant values and strengths. Data from D’Aunno’s nation-wide survey of treatment programs supported these operational expectations. That is, treatment units with growing numbers of patients with high needs reported increases (or had fewer decreases) in services, compared to units that did not face rising patient needs. Organizational goals also were related to service delivery in that units with an increase in the percentage of physician staff members were less likely to decrease medical and other services. Other studies have observed similar links between treatment program structural variables and delivery of services (e.g., D’Aunno, Folz-Murphy, & Lin, 1999; D’Aunno & Vaughn, 1995; D’Aunno, Vaughn, & McElroy, 1999; Friedman, Alexander, & D’Aunno, 1999; Friedman, Alexander, Jin, & D’Aunno, 1999; Friedman, D’Aunno, Jin, & Alexander, 2000; Marsh, D’Aunno, & Smith, 2000).

Evidence further suggests the general environment of health care exerts change on treatment providers and related services. Etheridge, Hubbard, Anderson, Craddock, and Flynn (1997) analyzed programs in the Drug Abuse Treatment Outcome Studies (DATOS) in regard to program structural and treatment characteristics from 1991 to 1993 and compared them to similar data from the Treatment Outcome Prospective Study (TOPS) collected in 1979–1981 (Hubbard et al., 1989). Changes in treatment and services were observed, with availability for most (e.g., medical, psychological, family, legal, educational, vocational, and financial) declining over the 10 years from TOPS to DATOS. At the same time, however, there were increases in individual and group counseling, length of stay, patient awareness of treatment plans, participation in 12-step programs, and patient satisfaction with treatment. When DATOS program directors were interviewed about program changes, they commented most frequently on agency reorganizations, decreases in training resources, and shifts in program finances, all with implications for technology transfer.

These findings point to the importance of learning more about organizational characteristics of treatment programs and their links with program effectiveness and efficiency. Durable programs must have, or develop, traits that prepare them for inevitable change, especially for adopting appropriate technologies to meet evolving demands.

5. A process model of program change

Although the literature identifies major factors seemingly involved in transferring drug treatment research to practice, understanding how to do it effectively needs improvement. Therefore, incorporating them as elements in an integrated framework could help advance the scientific progress and practical contributions in this field, including development of a set of assessments for patient, staff, and organizational dimensions represented. This kind of infrastructure is particularly important for conducting systematic studies of efforts to disseminate feasible and effective treatment innovations. By establishing a general “model of program change” representing major stages of change and factors that promote or inhibit success, the process involved can be more readily communicated, studied, and refined.

For this purpose, a program change model that integrates findings from the literature reviewed earlier is summarized in Fig. 1. It also incorporates theoretical contributions and industrial research findings from the field of organizational behavior (see Klein & Sorra, 1996). At the core of this heuristic framework are the four action steps typically involved in the process of technology transfer. Exposure is the first stage, usually involving training through lecture, self-study, workshops, or expert consultants. The second stage, adoption, represents an intention to try an innovation. While this might be a “formal decision” made by program lead-
ership, it also includes subtle levels of commitments made by individual staff members about whether an innovation is appropriate at a more personal level and should be tried. Implementation comes next, implying there is a period of trial usage of the new innovation to allow testing of its feasibility and potential. Finally, the fourth stage moves to practice, reflecting the action of incorporating an innovation into regular use and sustaining it (even if it is in some modified form). Each of these stages admittedly involves a series of smaller interrelated steps, but for conceptual parsimony it is preferable to group them here into four global stages.

5.1. Influences on the stages of change

The literature identifies several important factors that appear to influence this process and determine ultimately the extent to which the intended program changes occur. In order to examine the impact of these factors empirically and organize them into a meaningful system to help promote change, however, they need to be placed into a hypothetical and sequential framework that can be tested. Fig. 1 illustrates how some of the major factors are believed to be involved.

In regard to the first stage (exposure), the literature suggests there must be adequate readiness for change as indicated by motivation (defined by perceived needs and pressures for change) from program leaders and staff members as well as sufficient institutional resources (staffing, facilities, training, and equipment) for realistically considering innovations. Indeed, any of these factors can operate as barriers to staff training. Another obvious consideration involves convenience of the training opportunities (e.g., time and place).

Some programs may have resources to support staff travel to training conferences, but without motivation or pressures for change, chances are limited that available innovations will be adopted. For any given innovation, motivational readiness and perceived needs are key to moving the process to the second stage. Furthermore, decisions about adoption of new techniques or procedures can be made at either the individual or group level. For instance, individual counselors may find a specialized counseling technique intriguing and worth incorporating into their personal practice, or several staff members may decide collectively to adopt an innovation. A group decision is more complicated but necessary for comprehensive or systemic innovations, such as those for attaining general program goals. At the individual or group level, however, the decision is guided by the reception and utility of an innovation. This includes adequacy of the training received, perceived ease of use, and how well it fits (or has value) within the accepted therapeutic scheme and abilities of the users (Morgenstern, Morgan, McCrady, Keller, & Carroll, 2001).

The third stage of change, implementation, calls for the addition of resources and an atmosphere conducive to carrying through on decisions to adopt an innovation. Important organizational dynamics include an appropriate climate for change (e.g., clarity of mission and goals, staff cohesion, clinical autonomy, communication, stress, and openness to change) as well as institutional supports that encourage and sustain an innovation. This refers to monitoring, feedback, and the provision of formal as well as informal rewards that reinforce positive program changes. And finally, whether a new innovation is incorporated into standard clinical practice depends on staff attributes (e.g., professional growth, efficacy, influence, and adaptability) that promote the change process. Klein and Sorra (1996) stress the importance of fit between innovations and organizational dynamics (including staff skills), while Andrzejewski, Kirby, Morral, and Iguchi (2001) illustrate the value

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**Fig. 1. Program change model for transferring research to practice.**
of using feedback and positive reinforcement for effectively putting an innovation into place (e.g., a contingency management intervention).

To the extent that this 4-stage model represents elements of the program change process, it also identifies targets for “organizational interventions.” It is reasonable, for instance, that readiness of program leaders and staff to consider innovations may be influenced by training and research authorities, peer organizations, funding sources, and advisory boards. Indeed, preliminary evaluations of the impact of newsletters (including motivational inserts for downloading manuals from our website) support the expectation that direct communications from training and research specialists can raise interest in obtaining evidence-based counseling materials that are free and easy to access. Effective sources of persuasion for innovations, however, may vary across programs as well as for different types of innovations. Interventions designed to change organizational climate require more systematic attention, hopefully bringing ways to reshape organizational goals and increase openness to change.

6. Assessments

Evaluation and refinement of the model of program change proposed in Fig. 1 depends in large part on having appropriate assessments. Feasibility dictates that these assessments usually must come from voluntary self-report responses to survey questionnaires administered to program staff and patients. Organizational-level assessments are perhaps the most challenging because they require data to be taken from individuals within an organization (e.g., leaders, staff, patients) and then aggregated in ways that represent “the organization.” Selection of appropriate scales, data collection format, reliability and validity of measures, selection or sampling of individuals to properly represent the organization, and methodological alternatives for aggregating data are issues that must be addressed. Several sets of assessment instruments designed to address these needs are in various stages of development and testing at Texas Christian University (TCU), as summarized below, and are available for downloading without charge from our website (www.ibr.tcu.edu).1

Preparation of a comprehensive assessment toolkit is envisioned as part of our NIDA-funded project entitled “Transferring Drug Abuse Treatment Assessments and Resources” (DATAR-3). Included are instruments to assess: (1) program needs for technical training; (2) participant evaluations of training workshops and the extent to which new treatment materials are used following training; (3) program director and staff perceptions about organizational functioning; and (4) patient self-ratings of psychosocial functioning, treatment engagement, and services. Instructions for completion of these forms emphasize they are voluntary and safeguards were followed in our scoring and program feedback protocols for protecting confidentiality of responses (in accord with the standards and protocol approved by the Institutional Review Board at TCU).

The TCU Program Training Needs (PTN) survey is intended to help identify and prioritize treatment issues that programs believe need attention. Part A is completed by program directors, who are asked for a brief description of their program and staffing, followed by ratings of program training needs and pressures as well as diagnostic and billing procedures. In Part B, individual staff members are asked to respond to 48 (5-point agree-disagree) items about facilities and climate, satisfaction with training, preferences for training contents and procedures, computer resources, and barriers to training. Collectively, this type of information should help guide overall training efforts as well as predict the types of innovations that participating programs are most likely to seek out and adopt.

The TCU Workshop Evaluation (WEVAL) and TCU Workshop Assessment at Follow-Up (WAFU) forms focus on materials and training procedures used, progress made over time in exploring and adopting them, and factors that influence the process. The WEVAL is completed by participants immediately following each workshop training session and assesses reactions to the training and intentions to use the materials. The WAFU is mailed a few months later to individuals who participated in each workshop session and asks about utilization and future intentions to use the materials, program resources related to utilization, and barriers to use.

The TCU Organizational Readiness for Change (ORC) assessment includes 115 Likert-type (5-point agree-disagree) items for measuring 18 domains. It focuses on motivation (program needs, training needs, and pressures for change), program resources (offices, staffing, training, and equipment), staff attributes (growth, efficacy, influence, adaptability, and orientation), and organizational climate (mission, cohesion, autonomy, communication, stress, and change); parallel versions have been developed for the program director (or clinical supervisor) and counseling staff. Lehman, Greener, and Simpson (2002, in this issue) describe the ORC in detail, including the literature that led to the selection of these scales along with evidence on their psychometric properties and validity. This instrument is expected to help identify organizational traits that predict technology transfer outcomes. If so, it also could serve as a diagnostic tool for planning interventions to improve organizational readiness for change.

The TCU Client Evaluation of Self and Treatment (CEST) assessment includes 144 Likert-type (5-point agree-disagree) items for measuring 16 scales. It contains the key measures we found to be most important in our evaluation research on therapeutic process and patient recovery during

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1 More information (including intervention manuals and data collection instruments that can be downloaded without charge) is available on the Internet at www.ibr.tcu.edu, and electronic mail can be sent to ibr@tcu.edu.
the 10 years of work that preceded the current phase of the DATAR project (see Simpson, 2001; and Simpson, Joe, Dansereau, & Chatham, 1997). The CEST is self-administered by patients and focuses on psychological functioning (self-esteem, depression, anxiety, decision making, and self-efficacy), social functioning (hostility, risk taking, and social conformity), treatment motivation (desire for help and treatment readiness), treatment engagement (needs, satisfaction, counseling rapport, participation), and social network support (peer support from other patients, and other social supports such as family). It also includes items on recent services received. Repeated during-treatment assessments using the CEST can be used to monitor patient-level changes in psychosocial functioning and therapeutic engagement, which are central features for most counseling innovations. When aggregated across a representative sample of patients in a program, it provides a set of organizational indicators of patient functioning and service delivery, which can also be used to make comparisons across programs. Joe, Broome, Rowan-Szal, and Simpson (2002, in this issue) present the background for its development and psychometric properties (both at the patient level and when aggregated to represent a program-level assessment).

6.1. Preliminary applications

Initial results based on the use of these assessments have been encouraging, although it has not yet been possible to conduct comprehensive and integrated studies of their interrelations over time. For instance, the PTN was used recently in a statewide survey of treatment program training needs to help plan a series of workshops. It showed program directors (N = 54) emphasized the needs for documenting patient and program performance, as well as for staff training on cognitive and behavioral engagement strategies. Overall staff ratings (N = 252) gave priority to needs for training on dual diagnosis and improving family support, the use of brief diagnostic screening tools, and better computer resources. Procedurally, these treatment providers preferred training that used intensive full-day sessions on special topics, using group activities and role-playing, and help in adjusting or adapting innovations to local needs. There was also a strong interest in developing ways to exchange ideas with staff at other programs with similar interests. A lack of funds for attending conferences was viewed as the major barrier to training for program changes. These data are expected to be useful later for examining agency variations and how they relate to program attendance at training workshops (including the particular sessions attended by staff), how training sessions are evaluated, and whether the materials from training are adopted and implemented over time.

Our workshop evaluation instruments (i.e., the WEVAL and WAFU), based on TCU workshops conducted for two regional Addiction Technology Training Centers (ATTCs), are proving useful in making comparisons between various training sessions of a workshop as well as their rates of implementation at follow-up (see Research Roundup Newsletter, 2001-02). In general terms, over 90% of attendees at both workshops (based on 135 participants from 49 agencies) gave high ratings to the overall quality of training received, instructors, materials, benefits expected for patients, and willingness to recommend the TCU workshop to others. Ratings also were obtained for each training session (using the WEVAL), including details on training format, instructors, materials, applicability to patients, etc. Responses to follow-up surveys (using the WAFU) mailed 2 months later were received from 50–60% of participants.

Fig. 2. Staff ratings of motivation and resources (from the ORC) at 2 programs.
at the two workshops. It was found that the counseling manuals or materials presented in the various workshop sessions in that 2-month period were used by 25%–70% of the respondents. Primary reasons given for not using the materials included lack of time or resources, need for further training, and poor fit with personal counseling style. Further refinements to these instruments (designed to fit into a longitudinal evaluation system) are in progress.

Staff members from programs attending these TCU workshops completed assessments of organizational functioning (using the ORC) 3 months before training (see Research Roundup Newsletter, 2001). For illustration, Figs. 2 and 3 summarize findings based on two of these programs (scores are the averaged 5-point disagree-agree item responses for each scale, completed by at least 3 staff members, which when multiplied by 10 yielded scale scores ranging from 10 to 50). The scale mid-point was 30, with higher scores reflecting stronger levels of agreement (see Lehman et al., 2002, in this issue, for detailed explanations of these scales). Fig. 2 shows both programs had high scores on resources for Training (around 40), while scores for computer equipment (Comput) averaged only around 20. However, Program A had lower staff ratings on program needs for training (Prg Need) and adequacy of office resources (Offices) than Program B. Fig. 3 shows overall ratings of staff attributes and climate at both programs were generally favorable, but Program A had lower ratings of staff cohesion (Cohes) and the highest Stress level. Overall, these ratings indicate Program A had lower motivation for change, problems with office facilities, low cohesion, and high stress—not a favorable profile for predicting wide-scale adoption or implementation of new counseling innovations.

Self-ratings (using the CEST) from a sample of patients from programs attending our TCU workshops helped describe the overall psychosocial functioning, engagement levels, and types of services used by their respective clienteles (see Joe et al., 2002, in this issue, for detailed explanations of these scales). Findings from the same two programs described earlier are illustrated in Fig. 4. Program A (known from other records to serve primarily dual-diagnosis cases) included a high percentage of patients experiencing problems in self-esteem (SE), depression (DP), and anxiety (AX). Not surprisingly, patient services emphasized psychological counseling (for 75%), social services (for 79%), and frequent use of 12-step support groups (for 66%), all much higher than reported at other programs. Program B (known from other records to treat adolescents in outpatient care) included patients comparatively high in problems of motivation (almost 40%) and risk taking (RT, 70%).

With proper sampling design and replicated administrations over time, these patient and staff self-ratings can also be used for monitoring outcomes. For example, in comparing pre- and postworkshop survey results (covering a period of about 6 months) from our first TCU workshop, we detected significant improvements in the set of patient self-ratings on the treatment engagement scales (in the CEST) from one program, while no such changes were detected in two other similar agencies (see Research Roundup Newsletter, 2000-01). We found frequencies of individual and group sessions as well as other services had likewise increased (but again, not in the comparison agencies). Staff ratings (from the ORC) showed simultaneous improvements had occurred in attitudes toward program change, and ratings of program training needs had dropped in the areas addressed in our TCU workshop training sessions. A telephone call to the program confirmed the accuracy of these survey results. In brief, the recent appointment of a
new program director had been part of a major organizational change, including staff turnover and implementation of some of the techniques learned at the TCU workshop.

7. Conclusion

The successful transfer of evidence-based innovations to real-world applications requires careful planning, implementation, and ongoing evaluations of progress (Addiction Technology Transfer Centers, 2000). Even though some general principles are suggested in the program change model presented in this article, each situation is somewhat unique. Systematic study of the process is therefore needed in order to provide guidance for maximizing the effects of training. Appropriate assessments and research designs are basic requirements, of course, for testing and refining conceptual formulations of how different kinds of innovations can best be transferred.

All innovations are not equal, however. Some training can be accomplished successfully through lecture or self-study, while others require more intensive instruction through workshop or consultative methods. At the lower end of the “complexity continuum” are tailored manuals or materials that are well focused and can be delivered by counselors in a single individual or group session. Examples include some of the guides for special topics (e.g., anger management, communication or listening skills, and conflict resolution) frequently downloaded from our website and reportedly used with minimal technical guidance. Somewhat more complicated, however, is the introduction of a comprehensive counseling strategy for a treatment program. This typically involves multi-session interventions that have a broader focus and require more advanced counselor skills as well as staff coordination. Examples include training in contingency management interventions (Andrzejewski et al., 2001), motivational enhancement therapy (Miller, Zweben, DiClemente, & Rychtarik, 1992), and cognitive-behavioral therapy (Morgenstern et al., 2001), each of which calls for intensive training, clinical supervision, and possibly formal certification.

Perhaps the most complex of all is the implementation of an integrated system for managing clinical assessments, treatment delivery, and performance monitoring. Lamb et al. (1998) noted treatment delivery and patient performance monitoring systems deserve more attention because program administrators and directors frequently lack dynamic access to information on patient flow and progress that could help guide program decisions and changes. This involves a broad set of technical complexities related to the needs for creation of a dynamically-linked database, extraction of information for clinical, management, and financial applications, and integrated training of several user groups. It also requires high-level program resources for creation and maintenance.

While the basic elements of the program change model presented in Fig. 1 accommodate multiple levels of complexity, the set of influences that impact this process is expected to increase in intensity at the higher levels. The simplest of innovations can be adopted and implemented, for instance, with few special resources or supports. With more challenging innovations, on the other hand, comprehensive and positive support systems become increasingly important. Thus, evaluations of program change should take into account innovation requirements and complexity.
Although program-level change is typically a slow process, the abrupt agency restructuring that occurred following one of the TCU workshops was opportunistic because it helped demonstrate our assessments can accurately detect shifts in organizational attitudes and functioning. It adds credibility for their use in evaluating technology transfer efforts, helping us to begin looking more deeply into the “black box” of organizational change. But we still need to know more about the larger “universe” of treatment programs, particularly those that tend to be less interested and slower in the adoption of innovations. The set of articles assembled in this issue report findings from the first set of research grants funded by NIDA in 1999 to study technology transfer. Hopefully, they will prompt new ideas and strategies for merging drug abuse treatment research and practice, as discussed by Brown and Flynn (2002, in this issue).

Acknowledgments

This work was funded by the National Institute of Drug Abuse (Grant No. DA13093). Its foundations, however, began in 1989 with NIDA funding of our DATAR-1 project (Improving Drug Abuse Treatment for AIDS-Risks Reduction), followed by DATAR-2 (Improving Drug Abuse Treatment Assessments and Resources) and continuing in our current DATAR-3 phase (Transferring Drug Abuse Treatment Assessments and Resources). The interpretations and conclusions, however, do not necessarily represent the position of NIDA or the Department of Health and Human Services.

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