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Innovation adoption in substance abuse treatment: Exposure, trialability, and the Clinical Trials Network

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Abstract

Researchers and policymakers are increasingly focusing on factors that facilitate or impede the diffusion of evidence-based treatment techniques into routine clinical practice. One potentially fruitful avenue of research is the influence of involvement in research networks as a predictor of organizational innovation. The Clinical Trials Network (CTN) is examining a number of behavioral and pharmacological treatment techniques in controlled multisite studies. Using data from participating CTN treatment programs and large samples of programs outside the CTN, these analyses examine the influence of exposure to clinical trials on the subsequent adoption of buprenorphine and voucher-based motivational incentives. The analyses show that, controlling for a variety of organizational characteristics, direct exposure to buprenorphine clinical trials in the CTN significantly increased the odds of subsequent adoption. By contrast, the adoption of motivational incentives was entirely explained by organizational characteristics. The findings suggest that adoption of treatment innovations is a function of exposure, organizational resources, nature of innovations, and stage of the diffusion process.

Keywords: Innovation; Buprenorphine; Contingency management; Motivational incentives; Addiction treatment

1. Introduction

As the field of addiction treatment increases its emphasis on the use of evidence-based practices, research is needed to identify factors that facilitate and impede their adoption. Identifying structural impediments and resource needs can lead to technical assistance activities that may help pave the way for a successful and more rapid technology transfer in substance abuse treatment settings. A growing body of research is examining processes of technology transfer in addiction treatment organizations (e.g., Saxon & McCarty, 2005; Simpson, 2002). Most of these studies are focused on organizational correlates associated with adoption of treatment innovations. Less research attention has been paid to the influence of interorganizational relationships in promoting the use of innovations.

Studies in other health care specialties have identified the involvement of organizations in research networks as a predictor of innovation adoption (Fennell & Warnecke, 1988; Laliberte, Fennell, & Papandonatos, 2005). Such networks offer organizations exposure to innovations and opportunity to try new techniques. With the creation of the National Institute on Drug Abuse (NIDA)'s Clinical Trials Network (CTN), it is now possible to examine whether involvement in this type of research network enhances the adoption of evidence-based treatment techniques among addiction treatment facilities. Using data collected from community-based treatment providers affiliated with the CTN and data collected from national comparison samples, this research simultaneously considers the associations between research network affiliation and the adoption of two treatment innovations: buprenorphine and voucher-based motivational incentives.

Although the extant literature on the organizational adoption of pharmacotherapies in substance abuse treatment is small, several correlates of medication adoption are noted across studies. These include the extent of program reliance on commercial insurance, private payers, or both (Fuller, Rieckmann, McCarty, Smith, & Levine, 2005; Roman &

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Johnson, 2002); a philosophical orientation supportive of innovation (Knudsen, Ducharme, Roman, & Link, 2005; Thomas, Wallack, Lee, McCarty, & Swift, 2003); organizational resources, including program size and access to medical staff (Fuller et al., 2003; Knudsen et al., 2005); client characteristics (Fuller et al., 2005; Roman & Johnson, 2002); and counselor credentials (Fuller et al., 2005; Knudsen et al., 2005; Knudsen & Roman, 2004; Roman & Johnson 2002). Much less research describing the rates and patterns of adoption of evidence-based psychosocial counseling techniques is available. However, when an aggregated set of counseling strategies and medications was examined, some similar predictors were identified, notably those that measure an organization's "absorptive capacity," or its ability to identify and process new information (Knudsen & Roman, 2004).

Although a number of organizational characteristics have been associated with the adoption of innovative treatment strategies, a more fundamental predictor has received relatively little attention—namely, organizations' exposure to alternative treatment techniques. Researchers conceptualizing the technology transfer process note that exposure to an innovation is a necessary precursor to its eventual adoption within organizations (Backer, 1993; Simpson, 2002). Exposure may come in a variety of forms, such as attendance at a conference or reading a trade journal; staff participation in training or other hands-on learning activities about the technique; or a temporary trial of the technique on a limited basis within the organization. Although several studies have focused on the attitudes of individual staff members and the processes by which these are influenced (Knudsen et al., 2005; Mark, Kranzler, & Song, 2003; Thomas et al., 2003), the processes by which entire organizations are exposed to innovations and the impact of that exposure on subsequent adoption decisions at the organizational level have not been explored. This article reports on the effects of organizational participation in clinical trials on the subsequent adoption of evidence-based practices for substance abuse treatment. By comparing the characteristics of treatment programs engaged in time-limited clinical trials versus those with no such exposure, we can begin to understand the potential influence of such first-hand experience on the technology transfer process. If found, such influence suggests the importance of increasing organizational interaction between researchers and practitioners.

1.1. The CTN and trialability of innovations

The NIDA's CTN is a major effort to bring together addiction treatment providers and researchers for testing scientifically validated clinical approaches in the diversity of "real-world" treatment settings. The CTN is a network of treatment programs and university-based research centers collaborating on the implementation of multisite research protocols involving a variety of treatment medications and behavioral therapies. In the process of conducting these trials, the CTN seeks to identify the conditions under which empirically validated treatment techniques can be successfully adopted by community-based treatment providers (Hanson, Leshner, & Tai, 2002).

In his classic book, *Diffusion of Innovations*, Rogers (1995) identified "trialability" as a key element in the innovation adoption process. Trialability is the degree to which an innovation may be experimented with on a limited basis. Rogers contends that new ideas or techniques that can be tried on a limited basis reduce uncertainty for potential adopters, and this experience may be particularly important for early adopters who do not have the benefit of other organizations' experience to draw upon.

The CTN is thus unique in that it provides an opportunity for participating treatment programs to implement, on a time-limited basis, a treatment process with which they have had little prior exposure or experience. By participating in a CTN study protocol, participating programs receive training, study materials, and financial support needed to implement the practice in their organization. In lay terms, these trials provide the equivalent of a "free sample" to participating programs. Even those programs that do not participate directly in a particular clinical trial may also gain exposure to treatment innovations through their involvement in the CTN. From its initiation, the CTN has had internal committee structures and dissemination mechanisms that offer numerous opportunities for members to observe how particular trials are selected and designed, and to review study progress and results prior to their formal publication. Through face-to-face meetings, committee activities, conference calls, and frequent e-mails, network membership also confers numerous informal opportunities for clinicians to interact with other members and thereby learn about techniques being examined in other treatment programs.

Treatment programs that are affiliated with the CTN and participate in one or more of its study protocols have the opportunity to "try" a new technique without committing to its permanent adoption. Trialability will be an important predictor of adoption if—controlling for organizational characteristics and resources—programs that are directly exposed to a technique are significantly more likely to adopt it after the conclusion of the trial period. To examine the influence of trialability on innovation adoption, we examine two practices that have been the focus of several CTN protocols (buprenorphine and voucher-based motivational incentives) and compare the effects of exposure on the organizational adoption of these treatment techniques.

1.2. Buprenorphine

In October 2002, the U.S. Food and Drug Administration approved buprenorphine (specifically, Subutex and Suboxone, Reckitt Benckiser, UK) for use in the treatment of opioid dependence. Numerous clinical trials have been conducted to examine the effectiveness of buprenorphine (see review in Ling & Wesson, 2003), and the Substance Abuse and Mental