Journal of Substance Abuse Treatment 46 (2014) 232–237

Contents lists available at ScienceDirect

Journal of Substance Abuse Treatment

Brief articles

The relationship between Clinical Trial Network protocol involvement and quality of substance use disorder treatment

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ARTICLE INFO

Article history:
Received 7 May 2013
Received in revised form 31 July 2013
Accepted 5 August 2013

Keywords:
Substance use disorders
Treatment
Clinical trials network
Practice-based research network
Quality of care

ABSTRACT

The National Institute on Drug Abuse's Clinical Trials Network (CTN) is a practice-based research network that partners academic researchers with community based substance use disorder (SUD) treatment programs designed primarily to conduct effectiveness trials of promising interventions. A secondary goal of the CTN is to widely disseminate results of these trials and thus improve the quality of SUD treatment in the US. Drawing on data from 156 CTN programs, this study examines the association between involvement in CTN protocols and overall treatment quality measured by a comprehensive index of 35 treatment services. Negative binomial regression models show that treatment programs participating in a greater number of CTN protocols had significantly higher levels of treatment quality, an association that held after controlling for key organizational characteristics. These findings contribute to the growing body of research on the role of practice-based research networks in promoting health care quality.

1. Introduction

In 1999 the National Institute on Drug Abuse's Clinical Trials Network (CTN) was formed to help bridge the research-to-practice gap in substance use disorder (SUD) treatment in response to an influential Institute of Medicine (IOM) report (Lamb, Greenlick, & McCarty, 1998). Much like other specialties within health care, the IOM report noted that the field of SUD treatment was slow to integrate evidence-based practices (EBPs) into routine practice. The CTN continues to function as a multi-node practice-based research network in which academic researchers and community-based SUD treatment program (CTP) leaders collaborate to design and conduct effectiveness trials in diverse, "real world" treatment settings. The CTN focuses largely on interventions that already show promise, and thus, conducts Stage 3 effectiveness trials that seek to establish external validity by utilizing the diverse range of patients who are being treated within CTPs and by training clinicians who are already employed in CTPs (Tai, Sparenborg, Liu, & Straus, 2011; Wells et al., 2010).

To date, the CTN has completed 27 effectiveness trials and randomized over 15,800 patients. There are currently 17 trials in progress and additional trials in development (Tai et al., 2011). The CTN's research portfolio has included medications for the treatment of opioid use disorders and smoking as well as psychosocial interventions such as motivational enhancement therapy, contingency management, and brief strategic family therapy. Other protocols have focused on ancillary wraparound services, such as rapid HIV testing, HIV risk reduction interventions, employment services, and an intervention for women with co-occurring trauma and SUDs. (See Tai et al, 2010 and Wells et al., 2010 for a detailed description of completed CTN trials.)

Prior research has not examined the characteristics of CTPs within the CTN that have differentially participated in these clinical trials or the relationship between research involvement and overall treatment quality. Thus, the purpose of this paper is to explore whether research protocol involvement is associated with the provision of comprehensive treatment services and adoption of EBPs. According to common assumptions within the field, particularly those driving the promotion of the use of EBPs, these variables are proxies for higher quality service delivery (National Institute on Drug Abuse, 2009).

1.1. Practice-based research networks (PBRNs)

The NIDA CTN is part of a genre of practice-based research networks (PBRNs) that first emerged in the late 1970s as an alternative to the tradition of conducting clinical trials in academic health centers. Clinical trials in these academic settings were often seen as failing to adequately represent the health problems encountered by community clinicians and their patients (Macaulay & Nutting, 2006; Smith, Sexton, & Bradley, 2005; Tierney et al., 2007; Westfall, VanVorst, Main & Herbert, 2006). By contrast, PBRNs consist of collaborations between academic researchers and a group of

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http://dx.doi.org/10.1016/j.jsat.2013.08.021

community-based health care providers with the goal of improving health services delivery and closing the gap between research and practice (Gilbert et al., 2008; Pearce, Love, Barron, Matheny & Mahfoud, 2004; Riedy, Ly, Ybarra, & Milgrom, 2007). In the US, PBRNs span a variety of health disciplines including primary care, dentistry, and mental health (Andrews, Pearce, Ireson, & Love, 2005; Barasch et al., 2012; Buckley, Calvert, Lapidus, & Morris, 2010; McMillen, Lenze, Hawley, & Osborne, 2009; Tapp, Hebert & Dulin, 2011). According to Onofrie and colleagues (2004), PBRNs are said to be critical in facilitating translational science because they are able to "identify and assess implementation strategies that are most likely to be effective and sustainable (p. 139)."

In addition to their specific contributions to translational science, organizational behavior research indicates that participation in interoganizational networks, of which PBRNs represent a specific type, facilitates the adoption and diffusion of innovations among member organizations (Ahuja, 2000; Erickson & Jacoby, 2003; Gibbons, 2007; Goes & Park, 1997; Pittaway, Robertson, Munir, Denyer, & Neely, 2004; Powell, Koput, & Smith-Doerr, 1996; Rogers, 2003; Westphal, Gulati, & Shortell, 1997). These benefits with regard to innovation appear to result from knowledge sharing, resource exchange, collaboration, and communication that occurs among members of the network. In contrast to affiliative networks such as professional organizations, research networks may provide organizations with access to new innovations so they can gain experience with innovations before committing to full-scale implementation (Ducharme, Knudsen, Roman, & Johnson, 2007).

Empirical investigations in other fields have shown that research network involvement is positively associated with innovation adoption in member organizations (Fennell & Warnecke, 1988; Laliberte, Fennell, & Papandonatos, 2005; Minasian et al., 2010). Two studies examining the impact of participation in cancer research networks highlight the value of network involvement in improving implementation of evidence-based care and increasing access to innovative treatment interventions (Carpenter et al., 2011; Laliberte et al., 2005). Laliberte, Fennell, and Papandonatos (2005) found that patients receiving treatment in facilities participating in cancer research networks were more likely to receive treatment consistent with breast cancer treatment guidelines. A more recent study of the National Cancer Institute's Community Clinical Oncology Program (CCOP) demonstrates that organizations affiliated with the CCOP network were more likely to deliver innovative treatments to patients with early stage breast cancer than non-CCOP programs (Carpenter et al., 2011).

Our prior research on the NIDA CTN also demonstrates the benefits of research network membership on the adoption of specific medications within SUD treatment organizations. For example, a study by Abraham and colleagues (2010) found treatment programs that were members of the CTN were more likely than non-CTN programs to adopt both tablet naltrexone and acamprosate for the treatment of alcohol use disorders.

In addition to the general impact of network membership on innovation adoption, it is also important to examine the potential organizational benefits of actual participation in research. Greater involvement in the CTN's research protocols should amplify the value of network membership, because serving as a research site brings greater access to resources, such as technical assistance, training, and financial benefits. To date, two of our prior studies have examined the impact of participation in buprenorphine protocols on the adoption of this specific medication (Ducharme et al., 2007; Knudsen et al., 2009). In both studies, we found that CTPs that participated in buprenorphine protocols were significantly more likely to adopt the medication over time compared to programs that did not participate in these protocols. Since not all CTPs take part in protocols, this particular research network presents a unique opportunity to compare CTPs that have been involved in a greater number of protocols relative to CTPs with lesser involvement.

The current study moves beyond the examination of a single EBP and instead considers whether greater protocol participation is tied to overall quality using an aggregate measure based on NIDA's model of treatment services (National Institute on Drug Abuse, 2009). Notably, NIDA's model includes not only evidence-based treatment practices (e.g., motivational interviewing, pharmacotherapy) but also comprehensive "wraparound" services, standardized assessment, and aftercare, which research has demonstrated to be associated with more desirable treatment outcomes.

Consistent with the research network literature and building on our prior work, the objective of this study is to examine the impact of participation in CTN protocols on overall quality of SUD treatment within the CTN's community-based treatment programs. Our hypothesis is that greater participation in protocols will be positively associated with overall quality of SUD treatment services available within CTN treatment programs. This approach to measuring quality is centered on the assumption that the greater the range or comprehensiveness of service availability in a treatment program, the greater the likelihood that patients will receive the services that best address their unique set of presenting problems.

2. Methods

Data for this analysis are taken from a study that investigates the organizational structure and impact of the CTN. A key research question of this study is whether protocol participation is associated with the overall goal of the CTN – improving the quality of SUD treatment.

Data were collected via face-to-face interviews with program administrators of 198 community-based SUD treatment programs (CTPs) that represented the current membership of the CTN in 2008–2009. Because of multiple funding cycles since 1999, membership of specific nodes and CTPs has changed over time (Roman, Abraham, Rothrauff, & Knudsen, 2010). In general, university-based nodes invite CTPs to join their nodes at the time of grant submission, but may adjust node membership in response to the needs of specific protocols. These changes have resulted in CTPs with variable amounts of experience in protocol participation.

A CTP is defined as an organizational unit with an autonomous administrator who holds discretionary control over the unit's budget, thus allowing for instances of multiple CTPs embedded within one larger treatment organization. For example, a set of CTPs located throughout a state may be owned and operated by the same umbrella organization. To be eligible, CTPs were required to offer substance use disorder (SUD) services at least equivalent to American Society on Addiction Medicine (ASAM) level-1 outpatient services (Mee-Lee, Gartner, Miller, Shulman, & Wilford, 1996) or be licensed as opioid treatment programs (OTPs). Units solely focused on assessment or community outreach were not eligible for the study.

A total of 198 CTPs participated in this wave of data collection, representing 83 unique treatment organizations (response rate = 84.7%). Given the distinct treatment practices of OTPs (e.g., less focus on delivery of behavioral therapies, more narrow patient population served, more limited range of services offered), they were excluded from the analyses, resulting in a final sample of 156 programs. Participating treatment programs received a donation of $150. All research procedures were approved by the University of Georgia's and University of Kentucky's Institutional Review Boards.

2.1. Measures

2.1.1. Dependent variable

To measure overall treatment quality, we created a comprehensive index of treatment services based on NIDA's Principles of Drug Addiction Treatment (2009) that is similar to our prior research (Ducharme, Mello, Roman, Knudsen, & Johnson, 2007). This measure