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The Los Angeles County hub-and-provider network for promoting the sustained use of extended-release naltrexone (XR-NTX) in Los Angeles County (2010–2015)

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ABSTRACT

Extended-release naltrexone (XR-NTX) is a medication-assisted treatment (MAT) that is used in conjunction with psychosocial treatment for substance use disorder. It is associated with a reduction in the number of days that patients use alcohol or opioids, in cravings and drug-seeking behaviors, and in healthcare utilization costs, as well as improved medication adherence rates for patients in substance use disorder (SUD) treatment programs and improved quality of life. Despite the clinical effectiveness of XR-NTX, its clinical use has been slow to develop. There is little research describing the utilization of XR-NTX over time at the treatment-system level and few documented attempts to promote MAT by creating a system to explicitly promote and sustain MAT use. This study examines changes between April 1, 2010, and March 30, 2015, in the utilization patterns of XR-NTX for SUDs as promoted and delivered in a system of "medication hubs," comprised of community providers and a medication coordinating center, and training efforts. This system was implemented as part of a large demonstration project that was designed to provide access to XR-NTX in Los Angeles County. Our findings indicated an increase in the initiation of XR-NTX (59% increase) and subsequent doses (89% increase) from Year 1 to Year 5 of the project ($p < 0.001$). These findings suggest that it is possible to improve MAT utilization (in this case XR-NTX) through the use of a system of care that minimizes MAT payment issues for providers and patients, provides an infrastructure (medication hubs and SUD treatment providers), promotes system coordination, and educates providers.

1. Introduction

Extended-release naltrexone (XR-NTX) was approved by the Food and Drug Administration for use in the treatment of alcohol and opioid use disorders in 2007 and 2010, respectively. It is a full mu-opioid antagonist designed to block the receptors in the brain that are stimulated by alcohol or opioid use, thereby reducing the reinforcing pleasurable effects of alcohol or opioids. XR-NTX was developed as a solution to low adherence rates observed among patients who utilized daily oral naltrexone (Ciraulo, Dong, Silverman, Gastfriend, & Pettinati, 2008; Garbutt et al., 2005). XR-NTX is used in conjunction with psychosocial treatment for substance use disorders. The medication is administered through monthly injections that provide long-acting effects (Gastfriend, 2011). Use of XR-NTX is associated with a reduction in the number of days that patients use alcohol or opioids, a reduction in cravings and drug-seeking behaviors, and reduced healthcare utilization costs, as well as improved medication adherence rates for patients in substance use disorder (SUD) treatment programs and improved quality of life (Cousins, Radfar, et al., 2016; Hartung et al., 2014; Krupitsky et al., 2011, 2013; Nunes et al., 2015; O'Malley, Garbutt, Gastfriend, Dong, & Kranzler, 2007; Pettinati et al., 2006; Pettinati, Gastfriend, Dong, Kranzler, & O'Malley, 2009; Sullivan et al., 2013). Despite the clinical effectiveness of XR-NTX, its utilization in clinical practice has been slow to develop (Abraham, Knudsen, Rieckmann, & Roman, 2013; Roman, Abraham, & Knudsen, 2011).

There is little research on the utilization of XR-NTX over time at the treatment-system level. Several barriers limit the use of medication-assisted treatment (MAT) at the treatment-system level, including high costs, deficiencies in infrastructure (e.g., appropriate storage facilities, specialized staffing, etc.), lack of access to prescribing physicians, lack of knowledge about MATs, and negative beliefs about MAT and/or resistance to MAT (Abraham & Roman, 2010; Rieckmann, Kovas, & Rutkowski, 2010; Roman et al., 2011). Diffusion of innovations into practice settings (in this case, XR-NTX into SUD settings) requires the appropriate infrastructure (Bradley et al., 2004). Therefore, system-level approaches may improve the utilization of MAT. According to a draft report by the Agency for Healthcare Research and Quality (2016), there are few system-level models across the country that seek to improve access to MAT, and they typically involve

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buprenorphine. One common premise in these models is that coordinated care was critical for successful delivery of the MAT.

To illustrate, the hub-and-spoke model that was developed in Vermont provided a system of MAT treatment using methadone and buprenorphine to improve access to MAT for patients with opioid use disorders (Casper, Folland, Storti, Walters, & Fulmer, 2016; Simpatico, 2015). This system-level approach employed five geographically distributed opioid treatment centers (the "hubs") that provided methadone and buprenorphine treatment and was staffed with an expert team of addiction clinicians. These hubs served all patients in the state requiring methadone but referred and coordinated care for buprenorphine patients into primary care settings (the "spokes"). The spokes have one or more buprenorphine "MAT teams," which consist of a registered nurse and a licensed counselor/social worker. The hub-and-spoke network allows patients to receive appropriate medication in settings that have the appropriate level of MAT support and that do not require much travel time by the patient. Other elements of the hub-and-spoke system include an array of training opportunities for clinicians who become involved in the service delivery as well as coordinated activities between 2013 and 2014 using a learning collaborative model. This system-level approach successfully improved access to treatment for patients with opioid use disorder by removing traditional barriers to care (Casper et al., 2016; Simpatico, 2015). Similarly, Nordstrom et al. (2016) found that use of a learning collaborative to engage physicians improved access and slightly increased the number of patients who received medication.

In 2010, a demonstration project to increase access to XR-NTX in Los Angeles County was designed and implemented by the Los Angeles County Department of Public Health, Substance Abuse Prevention and Control (SAPC), in collaboration with UCLA Integrated Substance Abuse Programs (UCLA ISAP). This demonstration project was developed to provide XR-NTX to persons with alcohol use disorder and, after FDA approval of XR-NTX use for those with opioid use disorder (OUD) in October 2010, to those with OUD. To expedite the availability of XR-NTX by removing potential barriers within the treatment system, SAPC acquired supplies of XR-NTX, instituted a distribution system to make the medication accessible, created a SAPC treatment-provider coordinating group, and held MAT informational meetings to educate providers about XR-NTX and its use in treatment. UCLA ISAP, as part of a larger, long-standing evaluation contract with SAPC, conducted the evaluation of this project.

The demonstration project showed that it was possible to increase the availability of XR-NTX in a treatment system as large and diverse as Los Angeles County and that patients would utilize multiple doses of XR-NTX (Cousins, Denering, et al., 2016). However, it was unclear if utilization of the medication remained consistent after SAPC discontinued its intensive MAT promotion effort. Although SAPC continued to provide XR-NTX supplies, the promotion and education sessions were significantly reduced by 2012. Therefore, the present study examines whether the county-wide XR-NTX promotion and education effort produced change in practice beyond the intensive promotion period.

2. Methods

The current study examines trends in utilization of XR-NTX between April 1, 2010, and March 31, 2015, in Los Angeles County to see if the county-wide XR-NTX promotion and education effort produced changes in practice beyond the intensive promotion period from 2010 to 2012. All study design procedures were approved by the human subjects committees of the Los Angeles County Department of Public Health and the University of California, Los Angeles (Cousins, Denering, et al., 2016).

2.1. Components of the system

The demonstration trial is described in complete detail elsewhere (Cousins, Denering, et al., 2016); however, a brief summary is presented here.

2.1.1. Medication hubs

Three agencies, chosen because they had appropriate facilities (e.g., refrigerators, exam rooms) and staffing (e.g., nurses to provide the injection) to store and administer the medication were designated as medication hubs. SUD treatment centers located throughout the county referred patients who were interested in XR-NTX to the medication hubs. These hubs were SUD treatment centers that were located in three different geographical regions of Los Angeles County. A memorandum of understanding (MOU) between the medication hubs and each referring SUD treatment provider was established. This MOU stated that medication hubs were responsible for: (1) medical screenings, (2) responding to patient questions or concerns about the medication, (3) determining if the patient was medically cleared and subsequently administering the medication to the patient, and (4) coordinating with UCLA staff to ensure collection of data for the evaluation, which occurred from 2010 through 2014. In addition, the medication hubs were responsible for verifying that patients were medically eligible and opioid free for at least 7 days preceding the first dose of XR-NTX, which was determined by self-reports and urine tests. Although it would have been ideal for patients to abstain from alcohol use prior to the administration of XR-NTX, they were not required to do so.

2.1.2. SUD treatment providers

All Los Angeles county-funded psychosocial SUD treatment centers were eligible to refer patients to an XR-NTX medication hub. Eligible patients with an alcohol or opioid use disorder were informed of the availability of XR-NTX. If the patient expressed interest in XR-NTX, an appointment was arranged for the patient to meet with medical staff at a medication hub, where additional information was provided and a medical screening was conducted. Transportation was provided when needed. Eligible patients received XR-NTX at the medication hubs concurrent to their psychosocial treatment at the referring SUD treatment center. The current study includes participants enrolled in 43 SUD treatment agencies, located at 67 facilities across Los Angeles County. Given that the purpose of the project was to examine implementation in real-world circumstances, there was no need to (and no attempt was made to) randomize patients or ensure that the psychosocial treatment received was standardized.

2.1.3. Training activities

UCLA and SAPC conducted MAT informational meetings to reduce training and knowledge barriers among treatment staff. These meetings covered, but were not limited to, the use of XR-NTX at SUD programs. Information sessions were scheduled at each hub site and other sites that expressed interest in learning more about XR-NTX or other medications. The sessions were held multiple times at each agency to obtain a sufficient saturation rate among the staff and counselors and to address issues of staff turnover. Within the first 9 months of Year 1, over 60 informational sessions were held at 25 sites; however, these intensive promotional efforts decreased gradually over time. Approximately two trainings were held each month in Year 2 and approximately one training or fewer was held per month in Years 3 and 4.

2.1.4. Coordination meetings

Collaborative meetings with the medication hubs, UCLA ISAP, SAPC, and Alkermes (the manufacturer of XR-NTX under the brand name "Vivitrol") were held in-person and via conference calls on a monthly basis in the first 2 years of the project. Initially, the purpose of these meetings was to problem-solve implementation issues and to provide technical assistance to medication hubs as needed. The meeting discussion topics included a monthly report on the number of initial and subsequent doses that were administered by the medication hubs, implementation issues (e.g., problems encountered obtaining the medication from Alkermes, encounters with SUD provider misconceptions about MAT, revised SAPC policies or procedures, etc.), UCLA ISAP evaluation findings, and a medication hub's efforts to hasten the Medicaid

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