



Caring for pregnant opioid abusers in Vermont: A potential model for non-urban areas

Marjorie Meyer ^{*}, Julie Phillips

Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Vermont, Burlington, VT 05401, United States



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ABSTRACT

Opioid addiction is no longer a primarily urban problem. As dependence on heroin and prescription pain relievers has become a significant issue in rural areas, the need for effective treatment of opioid-dependent pregnant women and their neonates has grown accordingly. In addition to the adverse perinatal outcomes associated with opioid addiction in pregnant women, the high costs of caring for these mothers and their babies motivate efforts to develop appropriate treatment models. We found that integration and coordination of services that promote maternal recovery and ability to parent are key requirements for treatment of opioid dependence during pregnancy. Unfortunately, lack of experience and resources makes such coordination a real challenge in rural areas. In this review, we discuss how we managed the challenges of developing a comprehensive program for treatment of opioid dependence during pregnancy. In addition, we outline our approach for facilitating the development of community-based programs to help these patients and families in rural regions of Vermont. Close relationships between our tertiary care center, local hospitals, community health care infrastructure, and legislators bolstered our efforts. In particular, appreciation for the severity and importance of the opioid-dependence problem in Vermont among health care providers and state legislators was paramount for our success in developing a state-wide treatment program. This approach can inform similar efforts in other rural regions of the United States, and has great potential to improve both access and quality of care for women struggling with opioid dependence.

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Background

Opioid addiction is a growing public health concern that has reached epidemic proportions in the United States (U.S.). Results from the 2013 National Survey on Drug Use and Health document a 40% increase between 2002 and 2013 in the self-reported use of heroin in the past year from 404,000 to 681,000 users. An additional 11 million people reported non-medical use of prescription pain relievers (SAMHSA, 2013). Following these trends, antenatal opioid use increased 5-fold from 2000 to 2009, while treatment for neonatal abstinence syndrome (NAS) increased 3-fold over the same period (Patrick, 2012). The association with higher neonatal morbidity, prolonged hospital stay, and significantly increased neonatal care costs motivates interest in addressing opioid dependence during pregnancy.

The demographics of opioid dependence have changed with its increased prevalence. Whereas heroin abuse in the U.S. has long been centered in cities, a recent large-scale study of heroin users indicated that 75% were in small urban or non-urban areas compared to 25% in larger urban areas (Cicero, 2014). We have observed a similar shift in Vermont, where opioids are the primary substance of abuse for

over half of patients admitted for substance abuse treatment and opioid-related deaths have doubled from 2004 to 2013 (Vermont Department of Health, 2014a, b).

There is clear consensus that medication-assisted treatment (MAT), including opioid agonist therapy (OAT), is the most effective treatment for opioid dependence (Connery, 2015). Methadone, prescribed through opioid treatment programs (OTP), and more recently buprenorphine, prescribed in physician offices, have both been shown to reduce illicit drug use and increase retention in treatment programs. MAT is also effective in pregnancy; methadone maintenance is associated with improved prenatal care, fetal growth, and fewer preterm births (Jones, 2012). Physiologic stability that results from fewer repetitive cycles of opioid use and withdrawal may contribute to the beneficial effect of OAT among pregnant women.

Despite the undisputed efficacy of MAT, demand for treatment exceeds capacity in the U.S. (Peles, 2013) and access remains a significant barrier to MAT. This is especially true in rural areas, where access is further complicated by geography, long travel distances requiring time, money, and transportation (Sigmon, 2014). Pregnancy exacerbates these barriers, as obstetric and neonatal care must be coordinated with addiction treatment services.

This report presents the challenges encountered and reviews the interventions that were needed in developing and expanding MAT

^{*} Corresponding author. Fax: +1 802 847 2772.
E-mail address: marjorie.meyer@uvm.edu (M. Meyer).

programs for pregnant women and their newborn babies in Vermont. Specifically, our model addresses four key barriers we encountered as we implemented community-based care in Vermont:

- (1) Inadequate access to treatment for opioid-dependence in the community.
- (2) Limited options for MAT during pregnancy.
- (3) Lack of expertise among providers caring for opioid-dependent pregnant women and their opioid-exposed neonates.
- (4) Insufficient resources to care for opioid-exposed neonates in low volume obstetric hospitals.

We review our approach to developing a multidisciplinary program, including disseminating program elements to smaller communities and hospitals throughout Vermont.

Inadequate access to treatment for opioid-dependence in the community

Opioid addiction is a chronic, relapsing disease. Long term OAT increases the duration of abstinence from illicit opioids and increases retention in treatment programs compared to detoxification and short term MAT (Fiellin, 2014; Mattick, 2009). The current inadequate number of treatment slots is a major limitation to offering maintenance therapy for opioid dependence. In 2013, nearly 6 million individuals in the U.S. needed specialty treatment for illicit substance use (SAMHSA, 2013); the same year, nearly 1000 people were on a waiting list for methadone treatment in Vermont (Vermont Department of Health, 2013). Such prolonged wait times for treatment increase the risk for hepatitis, HIV, overdose, or death (Sigmon, 2014).

Medication options

Medication-assisted treatment for opioid dependence includes opioid agonists (methadone, levo-alpha-acetylmethadol), partial opioid agonists (buprenorphine), antagonists (naltrexone), and medications to assist detoxification (alpha-2 adrenergic agonists). Methadone is a full mu opioid agonist with a long half-life; a single dose reduces withdrawal symptoms for 24 h. This pharmacologic property allows for daily, observed dosing in federally regulated opioid treatment programs (OTP). Most programs have integrated counseling and ancillary services on site, a feature that is integral to their success (NIH, 1998). Expansion of methadone treatment is limited by the space and personnel required to provide such intensive services. In rural areas, the OTP model is further limited by the cost of travel and the duration of travel time, which can create difficulty with employment (Sigmon, 2014).

Levo-alpha-acetylmethadol (LAAM) is a longer-acting derivative of methadone, with similar efficacy. Initially a promising option, use was abandoned due to safety concerns related to prolongation of the QT interval (Stotts, 2009).

Buprenorphine is a mu opioid partial agonist, also with a long half-life allowing for daily dosing. Because of combined agonist/antagonist properties, there is less risk of respiratory depression compared with methadone (although either can be fatal when combined with benzodiazepines or alcohol) (Bonhomme, 2012; Schuman-Olivier, 2013). In 2000, the U.S. Congress passed the Drug Addiction Treatment Act, which provided the legal basis for office-based treatment for opioid dependence. Physicians must apply for waivers and receive specific DEA numbers linked to buprenorphine prescribing (SAMHSA, 2015a). The most common formulation of buprenorphine is a tablet or film combined with naloxone. Naloxone, an opioid antagonist, lacks bioavailability when administered sublingually, as directed, but can precipitate opioid withdrawal symptoms if injected or snorted. This combination of buprenorphine and naloxone was developed to reduce diversion or misuse (Orman and Keating, 2009).

Medications to alleviate symptoms of acute opioid withdrawal during detoxification block sympathetic over-activity and anxiety (clonidine, antihistamines). Following detoxification, opioid antagonists may be used to block the reinforcing properties of opioids to prevent relapse (Stotts, 2009). Naltrexone is a mu opioid-antagonist available as an oral daily medication, monthly intramuscular depot, or subcutaneous sustained release reservoir formulation. Data regarding efficacy of naltrexone are mixed; although the treatment retention rate of oral naltrexone is poor, the sustained release formulations reduce illicit opioid use with high rates of compliance (Krupitsky, 2011). Such sustained release formulations would make this an excellent choice for rural areas, although more data are needed to compare efficacy of naltrexone versus opioid agonists before widespread recommendations can be made (Bart, 2012). Increased mortality associated with relapse following detoxification or cessation of naltrexone remains a safety concern (Evans, 2015).

Medication expansion

Nationally, improved access to both methadone and buprenorphine was key in the expansion of MAT for opioid addiction. Mobile units that are fully equipped to provide OTP activities, including medication and counseling, have been shown to increase access in disenfranchised urban populations (Hall, 2014). BAART Behavioral Health Services (BBHS), for example, is a mobile methadone program first developed in the San Francisco area, which is now providing care across the country. Initial expansion of OTP into rural areas of Vermont utilized these mobile units, which increased access from one treatment center serving 100 patients in 2002 to three treatment sites serving 290 patients by 2006, providing OAT 100 miles from the major treatment center. As of 2013, approximately 450 individuals were receiving methadone or buprenorphine treatment through 2 mobile units (Vermont Department of Health, 2013). While the mobile OTP model expanded services, daily dosing is still required and can be a barrier to treatment.

Buprenorphine prescribed in the office setting provides greater flexibility with patient travel and scheduling demands. With recognition that expansion of medication options and community-based care were required to address the growing opioid abuse problem in Vermont, physicians in rural Vermont became early adopters of office-based treatment with buprenorphine. In a recent poll of family physicians in Vermont and New Hampshire, nearly three quarters reported that they felt a personal responsibility to treat opioid addiction (DeFlavio, 2015). From 2002 to 2006, Vermont expanded MAT from virtually no buprenorphine to approximately 400 patient treatment slots. Office-based prescribing has not been without challenges. In particular, concerns about medication diversion arose. Careful analysis revealed that diverted buprenorphine was often used for prevention of withdrawal rather than recreational use (American Association for the Treatment of Opioid Dependence, 2014; Monte, 2009), reinforcing the need for additional MAT access. Vermont implemented a Care Alliance initiative between the agencies of Drug Abuse and Prevention (ADAP) and the Department of Vermont Health Access (DVHA). Initiated in 2013, these agencies collaborated to create a coordinated, systemic response to opioid (and other) addictions. The key components included the modalities above (OTP, mobile methadone, office-based buprenorphine) but also included an administrative structure that facilitates patient transition based on the acuity of care. This model creates a HUB within the regional OTPs for the highest acuity patients in need of extensive daily services and a SPOKE for the office-based treatment of the stable patient. The strength of this model lies in the ability of patients to move easily between treatment programs as addiction symptoms improve or relapse. Further actions to improve access under consideration include smaller HUBS in the pharmacy or office, although legislative changes would be needed for execution (Vermont Department of Health, 2014c). Overall, these models address the lack of psychosocial and mental health supports identified as the

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