

## Medication-assisted treatment for opioid dependence: making a difference in prisons

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### Abstract

This article explores the evolving evidence supporting the provision of opioid maintenance therapies to incarcerated populations.

As of December 2008, approximately 10 million people around the world were incarcerated [1]. The United States has the highest incarceration rate in the world [1], with more than 2 million incarcerated adults [2], and roughly 50% of them suffer from substance abuse or dependence [3]. It follows that illicit drug use in prisoners is a huge problem for society as it is linked with the spreading of HIV and other infectious diseases, increased recidivism, and death. However, few prisoners who need treatment for substance abuse actually receive it, with only about 15% of US prisoners who used drugs in the 30 days prior to incarceration receiving formal substance abuse treatment from trained clinicians [3]. A significant portion of US incarcerated adults have histories of heroin addiction: probably somewhere between 12% and 15% of all prisoners [4,5] and nearly 25% of prisoners in state facilities (i.e., those convicted of more serious offences) [6]. Left untreated or under-treated, withdrawal symptoms and cravings combined with the general availability of drugs in prison contribute to inmates' drug use [7]. The result is the spreading of infectious diseases such as HIV [11,12] through "needle sharing", creating a large-scale public health problem [8]. Heroin use, in particular, also increases recidivism [13] and mortality [14].

Evidence-based research [9,10] clearly demonstrates that opioid maintenance therapy using methadone or buprenorphine effectively reduces heroin use. Because of this,

opioid maintenance therapies are currently recommended by the World Health Organization and the United Nations for both general and incarcerated [15,16,17] populations. As of 2008, although opioid maintenance therapies were available to the general population in 66 countries, only 29 countries had implemented any opioid maintenance therapies in jails or prisons, with only pilot programs and/or limited availability in many places [18-20].

This underprovision of treatment probably stems from the opinion that people who use illegal substances have broken the law and require punishment for misbehavior rather than treatment. However, advances in three related areas have made this argument less tenable. Firstly, there has been a realization that substance use disorders are chronic, brain-based medical disorders with high relapse rates [21,22]; secondly, there has been an increasing emphasis on evidence-based treatments in health care; and thirdly, recent evidence-based research has demonstrated that opioid maintenance therapies reduce heroin use in incarcerated populations as well as the general population. The conceptualization of substance use disorders as chronic medical conditions [23] is supported by molecular and imaging studies that have led the scientific community to view them as brain disorders with genetic contributions [22,24]; this has increased support for the chronic disease model and necessitated efficacious biological treatments.

Studies with inmates, as well as over 20 years of experience of a methadone maintenance therapy program at Rikers Island jail in New York, have added to opioid maintenance therapy's already extensive evidence base of data on the general population. The first randomized controlled trial of methadone maintenance with prisoners, conducted in 1968 [25], demonstrated impressive results postrelease. Offenders who received methadone maintenance before and after release were significantly less likely to use heroin or reoffend than wait-list controls. The Key Extended Entry Program (KEEP) at Rikers Island has been providing methadone maintenance during incarceration and dedicated treatment program slots postrelease since 1987 [26].

More recent studies have also had encouraging results. A US randomized trial of methadone maintenance initiated before or just after release from prison demonstrated encouraging results [27]. Patients were randomized to (a) counseling during incarceration with instructions to seek treatment upon release; (b) counseling during incarceration with facilitated referral to methadone maintenance upon release; or (c) counseling and methadone maintenance during incarceration, which was continued in the community upon release. Results 12 months after release demonstrated that participants receiving counseling and methadone while in prison were more likely than both of the other groups to be retained in treatment and were less likely to have opioid- or cocaine-positive urines than those in the counseling-only group [28]. An Australian randomized controlled trial also demonstrated reduced rates of heroin use, injection drug use, and syringe sharing among patients receiving methadone maintenance, relative to wait-list controls [29]. Older research evaluations of methadone maintenance programs during incarceration in Australia [30,31], the United States [32], and Canada [33] have also had positive results. A recent systematic review demonstrated that patients receiving opioid maintenance therapies during incarceration had a 55–75% reduction in injection drug use and a 47–73% reduction in needle sharing, relative to controls [34].

Although there have been fewer studies of buprenorphine treatment than methadone maintenance with incarcerated patients, results are promising. A randomized controlled trial conducted at the Rikers Island jail in New York [35] compared methadone maintenance to buprenorphine treatment; both treatments were given during incarceration in jail and postrelease. While there were no differences in reported drug use or re-arrest after incarceration, buprenorphine treatment patients were significantly less likely than methadone maintenance patients to withdraw from treatment in jail and had

significantly higher attendance at postrelease care. A feasibility study of buprenorphine treatment provided during incarceration and postrelease in Puerto Rico demonstrated that those who completed treatment were significantly less likely than untreated peers to have opioid-positive urine and be involved in self-reported crime [36]. Another study is currently underway in the United States [37].

The findings reviewed here are important because they provide evidence that opioid maintenance therapies for prisoners reduce drug use and act as a disease prevention measure. Now armed with the evidence, we can hope to change attitudes amongst the public and those working in the legal and prison systems to reduce the stigma associated with both addiction and medication-assisted treatments, to change laws and practices on international, national, and local levels, and to implement medication-assisted treatments with extensive follow up/aftercare for incarcerated individuals with opioid dependence. There is a continuing need for well-designed research studies, preferably randomized controlled trials, to further examine the efficacy of opioid maintenance therapies within specific incarcerated populations because different populations could respond to treatment differently and there could be a need to adapt the treatment to work better with a specific population.

### Competing interests

The authors declare that they have no competing interests.

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