



Attitudes and Practices Regarding the Use of Methadone in US State and Federal Prisons

Josiah D. Rich, Amy E. Boutwell, David C. Shield,
R. Garrett Key, Michelle McKenzie, Jennifer G. Clarke,
and Peter D. Friedmann

ABSTRACT *In the United States, vigorous enforcement of drug laws and stricter sentencing guidelines over the past 20 years have contributed to an expanded incarcerated population with a high rate of drug use. One in five state prisoners reports a history of injection drug use, and many are opiate dependent. For over 35 years, methadone maintenance therapy has been an effective treatment for opiate dependence; however, its use among opiate-dependent inmates in the United States is limited. In June 2003, we conducted a survey of the medical directors of all 50 US states and the federal prison system to describe their attitudes and practices regarding methadone. Of the 40 respondents, having jurisdiction over 88% (n=1,266,759) of US prisoners, 48% use methadone, predominately for pregnant inmates or for short-term detoxification. Only 8% of respondents refer opiate-dependent inmates to methadone programs upon release. The results highlight the need to destigmatize the use of methadone in the incarcerated setting, expand access to methadone during incarceration, and to improve linkage to methadone treatment for opiate-dependent offenders who return to the community.*

KEYWORDS *Hepatitis B, Hepatitis C, HIV, Incarceration, Methadone, Opiate dependence, Overdose, Prison, Prisoners, Recidivism.*

INTRODUCTION

The incarcerated population in the United States has increased dramatically over the past two decades, rising 239% in the 1990s alone and passing the two million mark for the first time in 2002.^{1,2} The United States now has the highest per capita incarceration rate in the world. This phenomenon has been fueled in large part by the so-called “war on drugs”: an increase in drug-related arrests coupled with strict mandatory sentencing requirements.³ Over the past 20 years, the number of people incarcerated annually for drug-related offenses has grown from 40,000 to 450,000,¹ resulting in an incarcerated population with high rates of reported drug use. An estimated 80% of incarcerated individuals have a history of substance abuse,^{4,5} whereas as many as 20% of state prisoners report a history of injection drug use.⁶

Incarcerated populations, especially injection drug users, suffer a disproportionate burden of chemical dependency, mental illness, and infectious diseases, including

Drs. Rich, Boutwell, Shield, and McKenzie are with The Miriam Hospital/Brown Medical School, Providence, Rhode Island; Key is with the Texas Tech University, Lubbock, Texas; and Drs. Clarke and Friedmann are with the Rhode Island Hospital, Providence, Rhode Island.

Correspondence: Josiah D. Rich, MD, MPH, The Miriam Hospital, 164 Summit Avenue, Providence, RI 02906. (E-mail: jrich@lifespan.org)

HIV, hepatitis, and tuberculosis.⁷⁻⁹ Annual turnover rates of up to 40% in prison mean that the diseases affecting incarcerated populations also affect the communities to which they return.^{10,11} Many incarcerated individuals with a history of substance abuse return to drug use upon release from prison and continue in a cycle of criminality,¹²⁻¹⁴ HIV risk behaviors,¹⁵ fatal and nonfatal overdose,¹⁶⁻²⁰ and, ultimately, reincarceration.²¹

Methadone has been widely used for over 35 years to treat opiate-dependent individuals.²²⁻²⁴ Short-term detoxification with methadone is rarely successful and often is followed by a rapid relapse to heroin use.^{25,26} Methadone maintenance treatment (MMT) aims to stabilize opiate-dependent individuals in the long-term and has been shown to significantly reduce opiate use and its associated risks.²⁷⁻³¹ This long term stabilization and continuous contact with medical care^{15,19} help to reduce post-release relapse to opiate use.¹³

Given the risk of relapse following release from incarceration, the Centers for Disease Control and the World Health Organization emphasize the importance of prevention programs that provide prisoners with continuity of care during the transition to the community.^{9,32,33} Indeed, the incarcerated setting provides a unique opportunity to intervene and disrupt the cycle of relapse and recidivism by linking opiate-dependent ex-offenders to MMT in the community upon release. In addition to transitional and post-release care, the potential benefits of implementing drug treatment programs during incarceration include reduced high-risk behaviors and improved post-release outcomes.^{32,34-36} Several prison-based methadone programs have been implemented, both in the United States and internationally, with promising results.³⁷⁻⁴¹

In this study, we surveyed the medical directors of United States federal and state prisons to understand and describe current attitudes and practices regarding the use of methadone with prisoners.

METHODS

A one page self-administered survey was mailed to the Medical Director or institutional equivalent in the 50 state departments of corrections plus the Federal Bureau of Prisons between June and September, 2003. Surveys were re-sent to nonrespondents with follow-up phone calls. The survey included questions about the prison population, procedures used to identify illicit opiate use at prison reception, and practices regarding methadone use in prisons. Respondents who indicated that methadone is used in their prison system were asked to provide information about the circumstances under which it is used and the specific licensing arrangements. If methadone is not used in their prison system, respondents were asked to identify barriers to the use of methadone in their facility. The final section of the survey assessed attitudes toward the usefulness of methadone for prisoners, practices of referring inmates to methadone treatment programs upon release, and awareness of the use of methadone in correctional facilities.

Data was managed in Microsoft Excel. Chi-square statistics tested the association between variables; statistical significance was defined at the $P < .05$ level. We calculated the number of prison inmates under the jurisdiction of the responding medical directors using a current census of 1.44 million US prison inmates at year-end 2002.¹

RESULTS

Of 51 officials surveyed, 40 individuals from 39 states and the Federal Bureau of Prisons responded, yielding a response rate of 78%. The 40 responding departments have jurisdiction over 88% ($n=1,266,759$) of the total number of prison inmates in the United States.

Nineteen respondents (48%) reported providing methadone to inmates, either as detoxification or maintenance treatment. Of those, 13 (68%) provide MMT to opiate-dependent pregnant women; no departments offer MMT to other opiate-dependent populations (Table 1).

Respondents indicated that methadone is used in prison systems for detoxification: 8 departments use methadone to detoxify inmates who were on community-based MMT, 6 use methadone to detoxify prisoners with opiate withdrawal symptoms, and 6 use methadone to detoxify opiate-dependent pregnant inmates. Of the 19 departments that provide methadone to prisoners, slightly more than half ($n=11$) arrange for methadone provision by coordinating with outside agencies, and six have their own license to administer methadone; two respondents did not answer the question.

When asked to identify barriers to administering methadone to inmates, the reason most cited by respondents ($n=10$) was the existence of logistical obstacles to implementation of a methadone program, including security concerns. Seven respondents indicated administrative opposition to the use of methadone, including the adoption of an abstinence model to addressing chemical dependency and questioning the need for methadone in prison. Two respondents reported that methadone was not necessary in the facility as inmates were detoxified in jail prior to arrival.

Respondents were asked whether they refer opiate-dependent inmates to methadone programs in the community upon release; less than 10% ($n=3$) of respondents indicated they do so (Table 2).

TABLE 1. Uses of methadone treatment in prisons

	Yes	No
Do you ever provide methadone to inmates?	19	21
If yes, in what circumstances?		
Methadone maintenance treatment for pregnant women	13	
Detox for pregnant women	6	
Methadone maintenance treatment for others	0	
Detox for those on methadone maintenance treatment	8	
Treat withdrawal from opiates	6	
If yes, how do you administer methadone?		
Own license to administer methadone	6	
Coordinate with outside methadone clinic(s)	11	
No response	2	

TABLE 2. Practices and attitudes regarding methadone in prisons

	Yes	No	Unknown/no answer
Do you refer inmates to methadone programs upon release?	3	31	6
Does methadone maintenance benefit opiate-dependent inmates?	12	14	14

When asked whether they believe that methadone benefits opiate-dependent inmates, 12 (30%) said yes, 14 (35%) said no, and 14 (35%) were unsure or did not answer the question. Of the 12 who responded that methadone can benefit opiate-dependent inmates, 2 specified that it only benefits pregnant inmates, and another 2 specified that it is not beneficial in the long term.

We examined the association between attitudes toward methadone (the belief that methadone benefits opiate-dependent inmates) and practices (providing methadone onsite or referring to methadone programs upon release). We found a statistically significant association between attitudes and practices. Those who do not believe that methadone is beneficial are less likely to provide methadone in their facilities ($P < .001$).

DISCUSSION

This national survey is the first to document attitudes and practices of US state and federal prison medical directors regarding the use of methadone in prison populations. Most of the prison medical directors do not provide methadone to inmates. Nearly half of respondents provide methadone in some situations, but such practices are confined to treatment for pregnant individuals, treatment for methadone withdrawal (for those in community MMT), and detoxification for opiate-dependent inmates. The results indicate an association between the attitude that methadone is not beneficial to opiate-dependent inmates and the lack of methadone provision to inmates. This association suggests that provision of methadone would increase if attitudes about methadone became more positive. Furthermore, we found that over one third of the respondents are unsure of the benefits of methadone or provided no answer to the question. This amount of uncertainty represents an opportunity to provide more information regarding the benefits of methadone use in opiate-dependent inmates to prison medical directors.

Only three respondents indicated that they refer opiate-dependent inmates to methadone programs upon release. This finding highlights an important area for programmatic improvement and expansion of services. Numerous studies document the high risk of relapse to drug use and overdose in the period immediately following release from correctional facilities.^{16-18,25} An immediate policy response for those departments of corrections who contract with outside providers to provide methadone detoxification for prison inmates ($n=11$, 28% of respondents) may be to arrange for consistent referral and linkage to care in the immediate post-release period. Providing effective linkage to methadone programs upon release will reduce criminality and decrease recidivism, as opiate-dependent individuals maintained on methadone treatment evidence improved social functioning and can sustain employment.⁴² Additionally, methadone maintenance therapy is considered to be a cost-effective alternative to incarceration.^{43,44}

Distinction should be made between the use of methadone among inmates who are incarcerated for lengthy sentences versus initiating MMT in those who will soon be released. Methadone treatment that is initiated shortly prior to release aims to link inmates to effective community treatment. Although it is clear that high-risk behaviors occur in incarcerated settings^{38,45-47} and that reduction in risk behavior can occur with the use of methadone,³⁹ variability of prison systems and settings in different regions may imply that optimal methadone treatment policies should be tailored to local conditions.

Providing MMT for inmates who were treated in community clinics prior to incarceration or initiating MMT in the incarcerated setting may also be an effective strategy to prevent HIV and hepatitis transmission in settings where high-risk behaviors are prevalent⁴⁶⁻⁴⁸ and where effective linkage to community-based treatment exists for the post-release period. Two considerations in deciding the political feasibility and advisability of initiating prison-based MMT are whether high-risk behaviors or intraprisoon disease transmission is evident^{48,49} and whether effective linkage to community MMT is present.

Given the risks of disease transmission and relapse to drug use and criminality in the immediate post-release period, the transition phase is ripe for a public health response to reduce risks. Programs in the United States have successfully initiated MMT prior to release. The Key Extended Entry Program (KEEP) on Rikers Island, New York, has shown that jailed inmates can initiate MMT prior to release; however, linkage to MMT in the community remains a challenge.^{40,41,50} Our Substance Abuse and Mental Health Services Administration funded program in Rhode Island has successfully linked transitioning offenders to MMT in the community upon release. Preliminary findings demonstrate improved engagement in MMT when financial and logistic barriers are minimized.⁵¹ These programs show that transitional linkage to MMT is feasible. Such programs provide models for other states interested in combating the cycle of drug relapse, related risk behavior, and criminality among the incarcerated, opiate-dependent population.

LIMITATIONS

This survey was designed to be brief and was conducted in a short period. Although we received 40 out of a possible 51 responses (78%), states more active in identifying and treating opiate-dependent inmates may have been more likely to respond. Response selection bias may thus have led to an overestimate of the percentage of systems that use methadone. Furthermore, we did not ask for specific numbers of inmates treated with methadone or the details of treatment, but clearly very few inmates are receiving methadone while imprisoned. Also, we are unable to draw conclusions about the extent to which methadone treatment in prisons conforms to federal guidelines.⁵² Additionally, the attitudes of the medical directors of state and federal prison systems might not represent their institutions. Other parties, such as administrators or drug treatment coordinators, might make decisions regarding the use of methadone for inmates although the opinions of the medical directors are likely to influence these policies.

Finally, this survey focused on state and federal prisons, facilities that incarcerated roughly 1.4 million individuals in 2003. However, an estimated 8 million individuals are incarcerated each year,¹ most of whom are jailed. This survey did not evaluate methadone treatment practices in jails. Evaluating the use of methadone in jails either for continuing MMT during short stays or for detoxification would highlight opportunities for public health intervention.

CONCLUSIONS AND FUTURE DIRECTIONS

Recommendations for action are indicated by the results of this study. One third of respondents were not sure if methadone could benefit inmates, which indicates an opportunity for training and education. Entering dialogues and providing

information regarding the benefits of methadone and why an opiate replacement therapy is the most effective treatment for many opiate-dependent individuals can happen at all levels of the prison system. Buy-in by managers, counselors, medical staff, and so on, is crucial for the effective implementation of programs. Advocacy suggestions are available on the website of American Association for the Treatment of Opioid Dependence (<http://www.aatod.org>). A very useful resource is a booklet entitled "About Methadone" that discusses dependence, why methadone works, and what to expect while being on methadone. Information regarding the booklet can be found on Drug Policy Alliance's website (<http://www.drugpolicy.org>).

Another practical measure indicated by the results is linking with MMT providers in the community. The basis already exists for many prisons that contract with community providers to oversee methadone administration in prison. MMT providers in the community are crucial partners in linking recently released ex-offenders with methadone treatment. Coordination of release dates to clinic intake, necessary clinic admission documents, and facilitated transportation are necessary to increase the likelihood of linkage.

Finally, from practical, political, and efficacious points of view, linkage to a community MMT provider upon release is most feasible. This option does not require the same amount of resources from the prison as prison-based treatment, and the benefits of this intervention are considerable as discussed earlier. Also, given that jails have much higher turnover rates and shorter periods of incarceration than do prisons,⁷ MMT patients who are jailed may benefit more from continuance of methadone treatment than their imprisoned counterparts. Continuing methadone treatment in the jail setting could greatly improve continuity of care for the post-release opiate-dependent population.

Because of two decades of increasing incarceration rates for drug-related offenses, prison populations have high rates of opiate-dependent individuals. In the absence of effective linkage to appropriate treatment, including MMT, many ex-offenders continue in a cycle of relapse to drug use and recidivism upon release. This survey demonstrates that a very small number of prison systems refer ex-offenders to MMT upon release into the community. Correctional institutions that have existing partnerships with community-based methadone providers should coordinate efforts to provide linkage to opiate treatment upon release. Such collaboration could substantially reduce the risks of recidivism, relapse to drug use, disease transmission, and overdose during the post-release period.

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REFERENCES

1. Bureau of Justice Statistics. Corrections statistics: summary findings. Available at: <http://www.ojp.usdoj.gov/bjs/correct.htm>. Accessed May 4, 2005.
2. Federal Bureau of Investigation. Uniform crime reports: crime in the United States. Available at: <http://www.fbi.gov/ucr/ucr.htm>. Accessed May 4, 2005.
3. Drucker E. Drug prohibition and public health: 25 years of evidence. *Public Health Rep.* 1999;114:14–29.
4. Center for Disease Control and Prevention. Drug use, HIV, and the criminal justice system. IDU HIV Prevention, 2001. Available at: <http://www.cdc.gov/idu/facts/criminal-justicefactsheet.pdf>. Accessed May 4, 2005.
5. Califano JA. Behind Bars: Substance Abuse and America's Prison Population. Population, CASA Report. New York, New York. National Center on Addiction and Substance Abuse at Columbia University; 1998.
6. Bureau of Justice Statistics. Substance abuse and treatment of state and federal prisoners, 1999. Available at: <http://www.ojp.usdoj.gov/bjs/abstract/satsfp97.htm>. Accessed May 4, 2005.
7. Hammett TD, Harmon MP, Rhodes W. The burden of infectious disease among inmates of and releases from US correctional facilities. *Am J Public Health.* 2002;92:1789–1794.
8. Spaulding A, Greene C, Davidson K, Schneidermann M, Rich JD. Hepatitis C in state correctional facilities. *Prev Med.* 1999;28:92–100.
9. Reindollar RW. Hepatitis C and the correctional population. *Am J Med.* 1999;107:100S–103S.
10. Centers for Disease Control and Prevention (CDC). Prevention and control of infections with hepatitis viruses in correctional settings. *MMWR Morb Mortal Wkly Rep.* 2003;52:1–36.
11. Rapposelli KK, Kennedy MG, Miles JR, et al. HIV/AIDS in correctional settings: a salient priority for the CDC and HRSA. *AIDS Educ Prev.* 2002;14:103–113.
12. Nurco DN, Hanlon TE, Kinlock TW. Recent research on the relationship between illicit drug use and crime. *Behav Sci Law.* 1991;9:221–242.
13. Nurco DN, Stephenson PE, Hanlon TE. Aftercare/relapse prevention and the self-help movement. *Addiction.* 1991;25:1179–1200.
14. Hanlon TE, Nurco DN, Kinlock TW, Duszynski KR. Trends in criminal activity and drug use over an addiction career. *Am J Drug Alcohol Abuse.* 1990;16:223–238.
15. Inciardi JA, McBride D, Suratt H. The heroin street addict: profiling a national population. In: Inciardi JA, Harrison LD, eds. *Heroin in the Age of Crack-Cocaine*. Thousand Oaks, CA: Sage; 1998:31–50.
16. Seaman SR, Brettle RP, Gore SM. Mortality from overdose among injecting drug users recently released from prison: database linkage study. *BMJ.* 1998;316:426–428.
17. Bird SM, Hutchinson SJ. Male drug-related deaths in the fortnight after release from prison: Scotland. *Addiction.* 2003;98:185–190.
18. Singleton N, Taylor C, Farrell M, Marsden J. *Drug-Related Mortality Among Newly Released Offenders*. London: Communications Development Unit, Home Office; 2003.
19. Weatherburn D, Lind B. Heroin harm minimisation: do we really have to choose between law enforcement and treatment? *Crime Justice Bull.* 1999;46:1–11.
20. Seal KH, Kral AH, Gee L, et al. Predictors and prevention of nonfatal overdose among street-recruited injection heroin users in the San Francisco Bay Area. *Am J Public Health.* 2001;91:1842–1846.
21. Merrill J, Alterman A, Cacciola J, Rutherford M. Prior treatment history and its impact on criminal recidivism. *J Subst Abuse Treat.* 1999;17:313–319.
22. Dole V, Robinson JW, Orraca J, Towns E, Searcy P, Caine E. Methadone treatment of randomly selected criminal addicts. *N Engl J Med.* 1969;280:1372–1375.
23. McGlothlin WH, Anglin MD, Wilson BD. Outcome of the California civil addict commitments. *Drug Alcohol Depend.* 1976;1:165–181.

24. McLellan AT, Arndt IO, Metzger DS, et al. The effects of psychosocial services in substance abuse treatment. *JAMA*. 1993;269:1953–1959.
25. Magura S, Rosenblum A. Leaving methadone treatment: lessons learned, lessons forgotten, lessons ignored. *Mt Sinai J Med*. 2001;68:62–74.
26. Sees K, Delucci K, Masson C, et al. Methadone maintenance vs. 180-day psychologically enriched detoxification for treatment of opioid dependence: a randomized controlled trial. *JAMA*. 2000;283:1303–1310.
27. Nestler EJ, Aghanajanian GK. Molecular and cellular basis of addiction. *Science*. 1997;278:58–63.
28. Ward J, Mattick RP, Hall W, eds. *Methadone Maintenance Treatment and Other Opioid Replacement Therapies*. Australia: Harwood Academic Publishers; 1998.
29. Metzger D, Navaline H, Woody G. Drug abuse treatment as AIDS prevention. *Public Health Rep*. 1998;133:97–106.
30. Capelhom JRM, Ross MW. Methadone maintenance and the likelihood of risky needle-sharing. *Addiction*. 1995;30:685–698.
31. Newman RG, Bashkow S, Cates M. Arrest histories before and after admission to methadone. *Contemp Drug Probl*. 1973:417–430.
32. Center for Disease Control and Prevention. Substance abuse treatment for drug users in the criminal justice system. IDU HIV Prevention, 2002. Available at: <http://www.cdc.gov/idu/facts/TreatmentFin.pdf>. Accessed May 4, 2005.
33. Martin SS, Butzin CA, Saum CA, Inciardi JA. Three-year outcomes of therapeutic community treatment for drug-involved offenders in Delaware: from prison to work release to aftercare. *Prison J*. 1999;79:294–320.
34. Center for Disease Control and Prevention. Helping inmates return to the community. IDU HIV Prevention, 2001. Available at: <http://www.cdc.gov/idu/facts/cj-transition.pdf>. Accessed May 4, 2005.
35. Grinstead O, Zack B, Faigeles B. Reducing post release risk behavior among HIV seropositive inmates: the health promotion program. *AIDS Educ Prev*. 2001;13:109–119.
36. Travis J, Solomon AL, Waul M. From prison to home: the dimensions and consequences of prison reentry. Urban Health Institute, 2001. Available at: http://www.urban.org/pdfs/from_prison_to_home.pdf. Accessed May 4, 2005.
37. Dolan K, Wodak A. An international review of methadone provision in prisons. *Addict Res*. 1996;4:85–97.
38. Sibbald B. Methadone maintenance expands inside federal prisons. *CMAJ*. 2002; 167:1154.
39. Dolan KA, Shearer J, MacDonald M, Mattick RP, Hall W, Wodak AD. A randomised controlled trial of methadone maintenance treatment versus wait list control in an Australian prison system. *Drug Alcohol Depend*. 2003;72:59–65.
40. Fallon BM. The Key Extended Entry Program (KEEP): from the community side of the bridge. *Mt Sinai J Med*. 2001;68:21–27.
41. Tomasino V, Swanson AJ, Nolan J, Shuman HI. The Key Extended Entry Program (KEEP): a methadone treatment program for opiate-dependent inmates. *Mt Sinai J Med*. 2001;68:14–20.
42. Gerra G, Ferri M, Polidori E, Santoro G, Zaimovic A, Sternieri E. Long-term methadone maintenance effectiveness: psychosocial and pharmacological variables. *J Subst Abuse Treat*. 2003;25:1–8.
43. Office of National Drug Control Policy. *Consultation Document on Methadone/LAAM*. Washington, DC:ONDCP; 1998.
44. Warren E, Viney R. CHERE: an economic evaluation of the prison methadone program in New South Wales, 2004: Available at: <http://www.chere.uts.edu.au/pdf/rep22.pdf>. Accessed May 4, 2005.
45. Clarke JG, Stein MD, Hanna L, Sobota M, Rich JD. Active and former IDU report of HIV risk behaviors during periods of incarceration. *Subst Abuse*. 2001;22:209–216.
46. Calzavara LM, Burchell AN, Schlossberg J, et al. Prior opiate injection and incarceration history predict injection drug use among inmates. *Addiction*. 2003;98:1257–1265.

47. Koulierakis G, Gnardellis C, Agrafiotis D, Power KG. HIV risk behaviour correlates among injecting drug users in Greek prisons. *Addiction*. 2000;95:1207–1216.
48. Champion JK, Taylor A, Hutchinson S, et al. Incidence of hepatitis C virus infection and associated risk factors among Scottish prison inmates: a cohort study. *Am J Epidemiol*. 2004;159:514–519.
49. Macalino GE, Vlahov D, Sanford S, et al. Prevalence and incidence of HIV, hepatitis B virus, and hepatitis C virus infections among males in Rhode Island prisons. *Am J Public Health*. 2004;4:1218–1223.
50. Magura S, Rosenblum A, Joseph H. Evaluation of in-jail methadone maintenance: preliminary results. *NIDA Research Monograph*. 1992;118:192–210.
51. Rich JD, McKenzie M, Carleton JC, Rizzi MA, Wolf FA, Crosland C. Linkage to methadone upon release from incarceration: a model. Paper presented at: APHA 131st Annual Meeting; November 19, 2003; San Francisco.
52. United States Code of Federal Regulations Certification of Opioid Treatment Programs, 42 CFR §8, 2005. Available at: <http://dpt.samhsa.gov/otp.htm>. Accessed May 4, 2005.