

*Addressing Addiction and High Risk Behaviors Using the Integrated  
Public Health and Public Safety Approach*

Authors: Wilson M. Compton and Redonna K. Chandler

From: *Mental Health in Public Health*. Linda B. Cottler, Editor. Oxford  
University Press: New York. May, 2011.

## *Chapter 2*

# *Addressing Addiction and High Risk Behaviors Using the Integrated Public Health and Public Safety Approach*

Wilson M. Compton and Redonna K. Chandler

The number of persons under justice supervision in the United States has increased markedly over the past 30 years, driven especially by an increase in use of justice sanctions to address crimes related to drug abuse and addiction. Such a shift has led the justice system to serve as a de facto partial quarantine system. While this situation may reflect broad trends to criminalize addiction-related behavior and may also reflect deterioration of our health care system and its inability to deal with the most vulnerable in our standard facilities, it also provides an opportunity for public health strategies that reach populations which are otherwise hidden. One problem is that approaches to drug use issues that are purely justice-based are fraught with recidivism, and purely medical approaches to drug use issues are fraught with poor uptake—many persons who could benefit from treatment fail to participate. An alternative hybrid approach is the combined public health and public safety model, which may offer the most promise to address addiction, mental illness, and related health conditions within the criminal justice system. This model incorporates the strengths of health and justice systems to address the needs and weaknesses of each. Dual benefits can also encourage participation by both systems. In addition to offering promise in addressing substance use and other mental illnesses, a combined public health and public safety approach may allow rational approaches to targeting HIV/AIDS, tuberculosis, and other infectious diseases in a high-risk population.

The absolute number and the proportion of the U.S. population involved in justice settings increased tremendously during the past 30 years. Between 1980 and 2008, the number of adults incarcerated in prison or jail increased nearly five-fold from approximately 500,000 to over 2.3 million.<sup>1</sup> Overall, in 2008 the number of adults in prison, jail, or some other form of correctional

supervision (probation, parole, work release, etc.) exceeded 7.3 million.<sup>2</sup> This represents approximately 3.2% of the adult (age 18+) population.<sup>3</sup> As seen in Figure 2.1,<sup>1</sup> the increases in incarceration were most dramatic during the late 1980s and early 1990s, with some leveling off in the past few years.<sup>2</sup> It is well known that the increases in incarceration are largely related to increases in drug-related crimes.<sup>4</sup> As a result, persons incarcerated exhibit very high rates of illicit drug abuse and addiction. Recent work has shown that approximately half of all those incarcerated meet the criteria for a DSM-IV (Diagnostic and Statistical Manual of Mental Disorders-IV) abuse or dependence on an illicit drug.<sup>5, 6</sup>

<Insert Compton Figure 2.1 here>

One impact of high rates of incarceration is that estimates of population rates of drug use disorders are distorted if one relies solely on the major general-population surveys.<sup>7</sup> When data from drug use disorders collected from inmates<sup>8-11</sup> were combined with results from a large noninstitutionalized sample of adults (the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions, NESARC<sup>12</sup>), the summed overall projected estimates of the number of persons ages 18 and older with a DSM-IV illicit drug use disorder in the U.S. were 25.1% higher than the estimates from the noninstitutionalized sample alone (increased by 1,043,000 from 4,159,000 to 5,202,000 persons). Estimates of the overall combined projected prevalence of a DSM-IV illicit drug abuse disorder increased over the base by 12.0% and DSM-IV dependence by 53.8%. Thus, high rates of DSM-IV substance use disorders among inmates combined with a large inmate population results in an incomplete picture regarding drug use disorders in major U.S. national general population surveys, such as the National Survey on Drug Use and Health,<sup>13</sup> because incarcerated persons are not included in the sampling frame.

Given the proportion of drug addicts that are incarcerated, it appears that prisons and jails form a pseudo-quarantine system for these disorders and associated health conditions including serious mental illness, HIV, and hepatitis C. The question is whether this system is effective in terms of improving public health and public safety or if an alternative approach could be more beneficial.

## *Racial Overrepresentation*

Certain racial and ethnic minorities are over-represented in the U.S. criminal justice system. In 2002, approximately 43.8% of admissions to prison were African American.<sup>14</sup> In addition, as shown in Figure 2.2,<sup>2</sup> the number of persons incarcerated since the 1980s has been disproportionately African American.<sup>15</sup>

<Insert Compton Figure 2.2 here>

## *Co-Occurring Mental and Physical Disorders*

Psychiatric and substance use disorders frequently co-occur in the general population.<sup>12,16-18</sup>

Psychiatric disorders are even more pronounced among those in the criminal justice system.

According to the Bureau of Justice Statistics, 56% of all state prisoners, 45% of federal prisoners, and 64% of jail inmates have a mental health problem.<sup>19</sup> These mental health problems span the full range of nonpsychotic and psychotic symptoms: 30% of jail inmates, 24% of state prisoners, and 16% of federal prisoners reported major depression and 24% of jail inmates, 15% of state prisoners, and 10% of federal prisoners reported recent hallucinations or delusions.<sup>19</sup> In addition, the majority of offenders with drug problems met criteria for a comorbid psychiatric disorder.<sup>20-22</sup> Seventy-six percent of local jail inmates as well as 74% of state prisoners and 64% of federal prisoners with a mental health problem were found to also have substance abuse or dependence.<sup>19</sup> High rates of mental illness among those incarcerated may relate to several factors including the increased use of jail and prison time for nonviolent drug offenses, lack of access to drug abuse treatment, and deterioration in the mental health treatment system.

Infectious diseases such as tuberculosis, HIV, and hepatitis B and C are associated with illicit drug use and occur at higher rates in offender populations than in the general population.<sup>6</sup> Recent research indicates that one in seven Americans living with HIV is released from a correctional facility.<sup>23</sup> For certain minority groups this number is even higher, with an estimated one in five African American and Hispanics living with HIV in this country being released from a prison or jail.<sup>23</sup> Availability of screening, treatment, and continuing care for these conditions appears to fall short of need,<sup>24-26</sup> despite the fact that it is feasible to implement programs in correctional settings for HIV,<sup>27,28</sup> hepatitis C,<sup>29,30</sup> and tuberculosis.<sup>31</sup> Programs to address these medical conditions are

most available in prisons and some jails but less so in other parts of the justice system (probation, parole, etc.). This is in part due to the fact that incarcerated inmates have a constitutional right to health care.<sup>32</sup> Continuity of treatment for released offenders with infectious disease is difficult, but important, not just for the individual's health,<sup>33,34</sup> but also for the health of the community.<sup>24,35-37</sup> A stark example of treatment disruption for HIV was recently shown in a study of inmates who had been on anti-retroviral medications while incarcerated and then were followed after release.<sup>37</sup> In this study, only 5% received prescriptions for antiretroviral treatment (ART) within two weeks after release.<sup>37</sup> These issues have garnered the attention of public health practitioners and researchers interested in learning how to effectively address the significant treatment needs of this population.

Addressing drug addiction and related health conditions, including mental illness and infectious diseases, for individuals involved in the criminal justice system is complicated. Historically, the public health and public safety systems have used different competing models to address these vexing issues. Recent efforts have attempted to develop a new blended model combining strengths from both public health and public safety systems.

## *Public Health Approaches*

The public health approach to drug addiction and related health conditions is built on the concept that addiction is a disease requiring treatment which is offered on a voluntary basis to patients.

Advances in clinical neuroscience support the neurobiological basis of addiction as a disease that affects the brain and behavior<sup>38</sup> rather than a moral weakness.<sup>39</sup> Key findings from neuroscience research demonstrate that repeated drug use leads to longstanding changes in brain functioning.<sup>40</sup>

These findings provide a way to understand why drug addicts have such difficulty quitting drug use despite the most severe consequences. It also presents an explanation for relapse and why punishment alone is an ineffective strategy for reducing drug use, supporting the conceptualization of addiction as a chronic condition requiring sustained treatment.<sup>41,42</sup> In addition, participation in drug abuse treatment provides an opportunity to screen for and treat related medical conditions including HIV and hepatitis C.

Research documents that treatment can be effective in reducing drug use and infectious disease risk behaviors as well as in improving other important outcomes.<sup>43-45</sup> Behavioral interventions have a strong evidence base, including cognitive therapies that teach coping skills and decision-making, contingency management interventions that shape and reinforce behaviors associated with abstinence, and motivational therapies that enhance the motivation to participate in treatment and in non-drug-related activities.<sup>43,46</sup> Exciting new research is exploring the use of computer technology to deliver behavioral therapies and one study has found that some components of cognitive behavioral therapy can be delivered through an automated computer platform.<sup>47</sup> The residential treatment approach that incorporates social learning theory in the construct of a therapeutic community has also been shown to be effective.<sup>48</sup> In addition, medications such as methadone, buprenorphine, and naltrexone are effective for opiate addiction, and naltrexone, acamprosate, and topiramate can be effective for alcohol addiction.<sup>49,50</sup> Finally, self-help support such as the 12-step Alcoholics Anonymous (and related) can be useful in supporting long-term behavior change.<sup>51</sup>

Cost-effectiveness studies document the potential value of public health approaches to treating drug-involved offenders.<sup>52</sup> In the United States, incarceration is estimated to cost about \$22,000 per person per year<sup>53</sup> and has minimal impact on long-term drug abuse beyond the incarceration phase. One specific treatment for opiate addiction, methadone, costs about \$4,000 per person per year<sup>54,55</sup> and has demonstrated effectiveness in reducing both drug use and criminal activity,<sup>56</sup> suggesting potential cost savings from this treatment approach. Overall, for every \$1 spent, prison-based treatment saves between \$2 and \$6.<sup>57</sup> These economic benefits of treatment reflect in part the reduction in criminal behavior.<sup>58,59</sup>

A key weakness of the public health approach to drug addiction is the assumption that patients will recognize and accept their need for treatment. Large-scale epidemiological studies do not bear out this fact and in fact indicate that only 6% of those meeting the criteria of drug abuse and 31% of those meeting criteria for drug dependence actually access treatment in a given year.<sup>12</sup> Many individuals who enter treatment drop out prior to completion or fail to receive ongoing recovery support services. In addition, many organizations and systems serving high-risk groups (e.g., medical care settings and criminal justice system) fail to implement effective interventions for

addiction. For example, it is estimated that the vast majority of prisoners (80–85%) don't participate in treatment despite clear need.<sup>5,60</sup>

## *Public Safety Approaches*

The public safety approach to reducing the consequences of drug use and addiction, including illegal drug possession and sales and other drug-related crimes, is built on the concept that such drug use is primarily an issue of illegal behaviors, and so, punishment is the primary approach to changing behavior. As seen in the increases in arrests and judicial punishments (primarily probation, parole, and incarceration), this public safety approach has been a major policy and practice to address drug addiction in the United States.<sup>15</sup> Unfortunately, in isolation, the public safety approach to addressing drug use behaviors has significant shortcomings as seen in the high rates of recidivism.<sup>61</sup> Further, a strictly public health approach to addiction also does little to impact the spread and contraction of related medical conditions including HIV.

A key assumption of the public safety approach is that incarceration will deter drug use. Yet, even in the constrained environment of incarceration, some individuals still have access to illicit drugs.<sup>62</sup> Further, long periods of abstinence while incarcerated fail to protect an offender from relapse when released, and rates of relapse are quite high in drug addicts released from prison or jail. This period of time after release is also fraught with excess morbidity and mortality, with drug overdose as a major contributing factor.<sup>63</sup> It has been suggested that the reentry process is an extremely difficult time that is filled with stressful events that contribute to both relapse and other excess morbidity and mortality. For example, reuniting with family, the need for housing and income, and the complexities of interacting with probation and parole are among the issues that offenders face after release.<sup>64,65</sup> In addition, returning to an environment rich in drug cues could be related to a rapid return to drug use following long periods of incarceration, and also suggests the need for ongoing treatment after release.<sup>66</sup>

Despite the evidence for benefits of drug treatment for offenders with addiction, a much less intense program called drug education is the most typical service provided to incarcerated

addicts.<sup>26,60</sup> There is also some participation in self-help (i.e., Alcoholics Anonymous and other 12-step groups) with more than 20% of both federal and state inmates with addiction problems participating in these groups while incarcerated.<sup>60</sup> By contrast, less than 20% of inmates with drug use disorders receive formal treatment.<sup>5,60</sup> Taxman and colleagues, in a recent survey of U.S. programs and organizations, showed that most correctional agencies offered some type of drug abuse treatment services, but few offenders were actually able to participate.<sup>26</sup> The median percentage of offenders who had access to effective treatment services at any given time was generally under 10%.<sup>26</sup> In particular, medications, proven effective in addressing opioid and alcohol addiction, have very low availability in justice settings,<sup>4,54</sup> despite the fact that one recent randomized trial for heroin-dependent inmates found that those who started methadone prior to release were significantly less likely to use heroin or cocaine, or to engage in criminal activity 12 months post-release than those who received only counseling.<sup>56,67,68</sup> While the potential exists for immediate adoption of methadone maintenance for incarcerated opioid addicts, few U.S. prison systems have been receptive to this approach.<sup>54,69</sup>

Furthermore, continuity of treatment outside of prison (which is essential to recovery<sup>70</sup>) is frequently missing when addicts leave prison or jail and reenter the community.<sup>36</sup> Such lack of continuity has an impact not just on the addiction outcomes, but may also increase the risk of mortality from drug overdose and other causes.<sup>63</sup>

### *Combined Public Health/Public Safety Approaches*

Given the inherent weakness of the two separate public health and public safety approaches to reducing crime and improving health outcomes, a key model has been developed that combines elements of both health and justice approaches. This “Combined Public Health/Public Safety Approach” builds on over 20 years of research documenting the effectiveness of drug treatment for addicts in the criminal justice system<sup>70,71</sup> by combining key elements of the health and justice systems. Such approaches include: drug court models that link drug treatment with judicial supervision,<sup>72</sup> prison and jail-based treatment combined with supervision and treatment during



reentry,<sup>73-75</sup> and the use of medication-assisted treatment for addiction.<sup>54,56,67-69</sup> Drug court models, for instance, appear to be cost-effective in that for each dollar spent on drug courts, approximately four dollars is saved in reduced costs of incarcerations and health care.<sup>76</sup> In addition, therapeutic community and counseling approaches incorporated into justice settings have been shown to reduce drug use and recidivism.<sup>77</sup> Individuals who participated in prison-based therapeutic communities with a community-based program post-incarceration were seven times more likely to be drug-free and three times less likely to be arrested for criminal behavior than those not receiving treatment after three years post-release.<sup>75,78</sup> Key to the combined approaches is collaboration between drug abuse treatment and criminal justice system professionals and the use of monitoring, supervision, and potential for legal sanctions by the justice system to encourage addicts to engage in drug treatment and change their behaviors over an extended period of time.

The typical justice approach includes intermittent monitoring of behavior, including drug use, by probation/parole personnel with unpredictable but sometimes quite severe punishments for infractions, including positive testing for drug use (e.g., long-term incarceration if successfully prosecuted). By contrast, a combined public health/public safety approach, especially those promulgated under drug court models, uses an intense form of justice supervision in which offenders with particular behavioral problems are seen frequently by court personnel in a process informed by psychological science: encouragement and positive reinforcement of behavior change and careful monitoring with predictable and immediate consequences for infractions.<sup>79</sup>

The National Institute on Drug Abuse (NIDA) recently issued a publication entitled *Principles of Drug Abuse Treatment for Criminal Justice Population*, which synthesizes research on drug abuse treatment for criminal justice-involved drug abusers,<sup>45</sup> advocating for the combined public health/public safety approaches to address addiction as well as related behavioral and medical conditions and recidivism. As outlined in Table 2.1,<sup>1</sup> these principles form the basis of a combined public health/public safety approach to intervention with addicts in justice settings and depend on a coordinated response by criminal justice agencies, drug abuse treatment providers, mental health and physical health care organizations, and social service agencies.

<Insert Compton Table 2.1 here>

Effective integration of drug treatment and related medical interventions into criminal justice settings requires matching the intervention to the unique needs of different justice organizations (Table 2.2). For example, arrest is an entry point into the justice system and may alert an individual to the severity of their drug use. This phase can provide an opportunity for immediate evaluation of drug use and related health care needs. Since jail stays are usually brief, the interventions best suited to this environment may include screening for the various substance disorders (tobacco, drug, and alcohol abuse), other mental illnesses (i.e., co-occurring mental illnesses), and medical diseases (e.g., tuberculosis, STDs, HIV, and hepatitis B/C), the delivery of a brief intervention intended to boost motivation to seek treatment, and/or referral to community-based treatment providers. Similarly, each step in the criminal justice process (e.g., arrest, trial, sentencing, corrections, and reentry) lends itself to specific intervention opportunities, based on the specific key stakeholders who play a role in sanctioning and supervising offenders at that step in the justice process.

<Insert Compton Table 2.2 here>

A key element to implementing the principles of drug abuse treatment for criminal justice populations is for the two disparate health and justice systems to coordinate as they address an addict's drug use, behavioral and health care needs, and criminal behavior. It is essential for the drug treatment staff to be aware of and tailor their approaches to the justice supervision requirements of their patients. In addition, drug abuse treatment outcomes are improved when antisocial and criminal behaviors are also targets of clinical attention.<sup>80</sup> Justice system staff need to be aware of and tailor their approaches based on an understanding of addiction (including the use of positive reinforcement, warning signs for mental health decompensation and relapse, and need for more intense treatment) in order to maximize their impact on reducing crime and enhancing recovery.

## *Next Steps*

A combined public health/public safety approach to addictions, mental illness, and related health conditions has the potential to impact a wide range of outcomes important to justice, behavioral

health, and health care systems. This model provides a mechanism to maximize effectiveness in dealing with criminal activity and recidivism associated with drug use, which are of central importance to public safety officials. Likewise, mental illness, addiction, and infectious disease outcomes important to treatment providers are enhanced when combined approaches are applied. If this is true, why aren't these approaches used universally? Organization and management constraints, including a lack of infrastructure to support information sharing, high caseloads for criminal justice supervisors, inadequately staffed and trained drug treatment programs, and separate funding streams, create significant impediments to the implementation of these approaches. A lack of effective brief interventions may also play a role, and one approach that appears promising, especially for arrest and jail phases which generally have short time periods for intervention, is the use of screening combined with brief intervention (or linkage to treatment, depending on an individual's severity). This approach builds on established substance use Screening and Brief Intervention or Referral to Treatment (SBIRT) models in general medical settings.<sup>81</sup> In addition, because of their efficiency, technology-assisted implementation may make SBIRT approaches especially easy to administer.<sup>82</sup>

Next steps are twofold and include: First, applying principles of implementation science to build an evidence base on how to export effective principles of drug abuse treatment into criminal justice settings while simultaneously figuring out ways to create and sustain public health/public safety collaborations.<sup>83</sup> Second, applying effective implementation frameworks for addictions and other related health conditions. These approaches could be applied to mental illness as well as general health conditions where behavior plays a key role in disease progression and/or transmission (e.g., HIV and other STDs, tuberculosis, and hepatitis).<sup>84</sup>

## *Conclusions*

There are many barriers to treatment for drug-involved offenders, including lack of resources, infrastructure, and treatment staff. Addiction remains a stigmatized disease that is often not regarded by the criminal justice system as a medical condition and as a consequence is not afforded the same guarantee of treatment like other medical conditions. In addition, the criminal justice

system lacks the staff and resources needed to identify and treat frequently co-occurring mental and physical health conditions.

For behaviors that are fundamentally linked to drug addiction<sup>4,85</sup> punishment alone is a temporary stopgap approach. The irony is that approaches that integrate strengths of both the public health and public safety systems can be more effective than stand-alone arrest and incarceration in improving public safety outcomes. Marked increases in the number of offenders with drug addiction and other serious comorbid conditions make it imperative that we continue to respond with smarter methods. We believe a combined public safety/public health approach holds the most promise for addressing the multiple drug abuse, mental health, and health care needs of the criminal justice system

Success in the adoption, implementation, and sustainability of this promising new approach requires a culture shift in both the public health and safety systems simultaneously. The public safety system, designed to enforce laws and punish illegal drug use, must recognize the role they can play in improving not just crime rates but community health by facilitating participation in addiction, mental health, and medical treatment. Similarly, public health officials must reach into the public safety system to establish collaborative mechanisms to deliver care. Finally, policymakers need to recognize that an integrated approach is not intended to be “soft on crime.” It is often more rigorous in terms of close follow up of offenders and is designed specifically to reduce crime, in addition to addressing serious health needs. Overall, not treating the drug-abusing offender is a missed opportunity to simultaneously impact public health and public safety.

### *Acknowledgments*

The authors acknowledge the contributions of multiple scientists supported by the National Institute on Drug Abuse whose work has informed this chapter, as well as judicial colleagues who provided essential guidance in developing the concepts. In addition, the concepts in this paper are particularly indebted to the paper by NIDA scientists, Drs. Redonna Chandler, Bennett Fletcher, and Nora Volkow.<sup>66</sup>

*Financial Conflicts of Interest:* No authors have any relevant financial interests to report.

*Disclaimer:* The views and opinions expressed in this report are those of the authors and should not be construed to represent the views of the National Institute on Drug Abuse, the National Institutes of Health, or other parts of the U.S. government.

## References

1. Bureau of Justice Statistics Prisoner Series. (2010). *Prisoners in 2008*. Web page document <http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=1763>. Accessed January 31, 2010.

---

2. Bureau of Justice Statistics Correctional Surveys (2010). *Total correctional population*. Available at: <http://bjs.ojp.usdoj.gov/index.cfm?ty=tp&tid=11>. Accessed January 31, 2010.

---

3. United States Census Bureau (2010). Population estimates. Available at: <http://www.census.gov/popest/states/asrh/SC-EST2005-01.html>. Accessed January 20, 2010.

---

4. Jensen, E. L., Gerber, J., & Mosher, C. (2004). Social consequences of the War on Drugs: The legacy of failed policy. *Criminal Justice Policy Review*, 15(1), 100–121.

---

5. Karberg, J. C. & James, D. J. (2005). *Substance dependence, abuse, and treatment of jail inmates, 2002*. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics. DOJ publication no. NCJ 209588.

---

6. Weinbaum, C. A., Sabin, K. M., & Santibanez, S. S. (2005). Hepatitis B, hepatitis C, and HIV in correctional populations: A review of epidemiology and prevention. *AIDS*, 19(Suppl3), S41–S46.

---

7. Compton, W. M., Dawson, D., Duffy, S. Q., & Grant, B. F. (in press). The impact of inmate populations on estimates of alcohol and drug use disorders in the United States. *Am J Psychiatry*.

---

8. U.S. Department of Justice, Bureau of Justice Statistics (2003). Prison and jail inmates at midyear 2002. *Bureau of Justice Statistics Special Report*. NCJ 198877. Available at: <http://www.ojp.usdoj.gov/bjs/pub/pdf/pjim02.pdf>

---

9. U.S. Department of Justice Bureau of Justice Statistics. (2005). Substance dependence, abuse, and treatment of jail inmates, 2002. *Bureau of Justice Statistics Special Report*. NCJ 209588. Available at: <http://www.ojp.usdoj.gov/bjs/pub/pdf/sdatji02.pdf>

10. U.S. Department of Justice Bureau of Justice Statistics. (2006a). Drug use and dependence, state and federal prisoners, 2004. *Bureau of Justice Statistics Special Report*. NCJ 213530.

Available at: <http://www.ojp.gov/bjs/pub/pdf/dudsfp04.pdf>

---

11. U.S. Department of Justice Bureau of Justice Statistics. (2006b). Mental health problems of prison and jail inmates. *Bureau of Justice Statistics Special Report*. NCJ 213600. Available at:

<http://www.ojp.gov/bjs/pub/pdf/mhppji.pdf>

---

12. Compton, W. M., Thomas, Y. F., Stinson, F. S., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*, *64*, 566–576.

---

13. Substance Abuse and Mental Health Services Administration. (2009). *National Survey on Drug Use and Health 2008 National Findings*. Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09–4434. Rockville, MD.

---

14. Bureau of Justice Statistics. *National Corrections Reporting Program, 2002*. Analyzed online at: <http://www.icpsr.umich.edu/cgi-bin/SDA/ICPSR/hsda?nacjd+04345-0001>. Accessed January 25, 2010.

---

15. Iguchi, M. Y., Bell, J., Ramchand, R. N., & Fain, T. (2005). How criminal system racial disparities may translate into health disparities. *J Health Care Poor Underserved*, *16*, 48–56.

---

16. Hasin, D. S., Stinson, F. S., Ogburn, E., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*, *64*(7), 830–842.

---

17. Kessler, R. C., Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, J., & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Arch Gen Psychiatry*, *54*(4), 313–321.

18. Grant, B. F., Stinson, F. S., Dawson, D. A., Chou, S. P., Ruan, W. J., & Pickering, R. P. (2004). Co-occurrence of 12-month alcohol and drug use disorders and personality disorders in the United States. *Arch Gen Psychiatry*, *61*, 361–368
- 
19. James, D. J. & Glaze, L. E. (2006). *Mental health problems of prison and jail inmates*. Washington, DC: U.S. Department of Justice, Office of Justice Programs. NCJ Publication Number 213600.
- 
20. Abram, K. M. & Teplin, L. A. (1991). Co-occurring disorders among mentally ill jail detainees: Implications for public policy. *Am Psychol*, *46*(10), 1036–1045.
- 
21. Chandler, R. K., Peters, R. H., Field, G., & Juliano-Bult, D. (2004). Challenges in implementing evidence-based treatment practices for co-occurring disorders in the criminal justice system. *Behav Sci Law*, *22*(4), 431–448.
- 
22. Glaze, L. E. & James, D. J. (2006). *Mental Health Problems of Prison and Jail Inmates*. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics. DOJ publication no. NCJ 213600. Available at: <http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=789>. Accessed January 20, 2010.
- 
23. Spaulding, A. C., Seals, R. M., Page, M. J., Brzozowski, A. K., Rhodes, W., & Hammett, T. M. (2009). HIV/AIDS among inmates of and releases from U.S. correctional facilities, 2006: Declining share of epidemic but persistent public health opportunity. *PLoS One*, *11*(4), 1–6.
- 
24. Boutwell, A. E., Allen, S. A., & Rich, J. D. (2005). Opportunities to address the hepatitis C epidemic in the correctional setting. *Clin Infect Dis*, *40*(Suppl5), S367–S372.
- 
25. Zaller, N., Thurmond, P., & Rich, J. D. (2007). Limited spending: An analysis of correctional expenditures on antiretrovirals for HIV-infected prisoners. *Public Health Rep*, *122*(1), 49–54.
- 
26. Taxman, F. S., Perdoni, M. L., & Harrison, L. D. (2007). Drug treatment services for adult offenders: The state of the state. *J Subst Abuse Treatment*, *32*(3), 239–254.

27. Desai, A. A., Latta, E. T., Spaulding, A., Rich, J. D., & Flanigan, T. P. (2002). The importance of routine HIV testing in the incarcerated population: The Rhode Island experience. *AIDS Educ Prev, 14*(5)(Suppl), 45–52.

---

28. Sabin, K. M., Frey, R. L., Horsley, R., & Greby, S. M. (2001). Characteristics and trends of newly identified HIV infections among incarcerated populations: CDC HIV voluntary counseling testing and referral system 1992–1998. *J Urban Health, 78*(2), 241–255.

---

29. Allen, S. A., Spaulding, A. C., Osei, A. M., Taylor, L. E., Cabral, A. M., & Rich, J. D. (2003). Treatment of chronic hepatitis C in a state correctional facility. *Ann Intern Med, 138*(3), 187–190.

---

30. Vallabhaneni, S., Macalino, G. E., Reinert, S. E., Schwartzapfel, B., Wolf, F. A., & Rich, J. D. (2006). Prisoners favor hepatitis C testing and treatment. *Epidemiol Infect, 134*(2), 243–248.

---

31. Centers for Disease Control and Prevention (CDC), National Center for HIV/AIDS, Viral Hepatitis, STD, TB Prevention (2006). Prevention and control of tuberculosis in correctional and detention facilities: Recommendations from CDC. Endorsed by Advisory Council for the Elimination of Tuberculosis, the National Commission on Correctional Health Care, and The American Correctional Association. *MMWR Recomm Rep, 55*, 1–44.

---

32. *Estelle v. Gamble*, 429 U.S. 97 (1976). U.S. Supreme Court, Number 75–929. Available at: <http://supreme.justia.com/us/429/97/case.html>, Accessed January 25, 2010.

---

33. Rich, J. D., Holmes, L., Salas, C., et al. (2001). Successful linkage of medical care and community services for HIV-positive offenders being released from prison. *J Urban Health, 78*(2), 279–289.

---

34. Springer, S. A., Pesanti, E., Hodges, J., Macura, T., Doros, G., & Altice, F.L. (2004). Effectiveness of antiretroviral therapy among HIV-infected prisoners: Reincarceration and the lack of sustained benefit after release to the community. *Clin Infect Dis, 38*(12), 1754–1760.

---

35. Freudenberg, N. (2001). Jails, prisons, and the health of urban populations: A review of the impact of the correctional system on community health. *J Urban Health, 78*(2), 214–235.



36. Hammett, T. M., Roberts, C., Kennedy, S (2001). Health-related issues in prisoner reentry. *Crime Delinq*, 47(3), 390–409.
- 
37. Baillargeon, J., Giordano, T. P., Rich, J. D., Wu, Z. H., Wells, K., Pollock, B. H., et al (2009). Accessing antiretroviral therapy following release from prison. *JAMA*, 301(8), 848–857.
- 
38. Volkow, N. & Li, T. K (2005). The neuroscience of addiction. *Nat Neurosci*, 8, 1429–1430.
- 
39. Kosten, T. R (1998). Addiction as a brain disease. *Am J Psychiatry*, 155(6), 711–713.
- 
40. Shaham, Y. & Hope, B. T (2005). The role of neuroadaptations in relapse to drug seeking. *Nat Neurosci*, 8(11), 1437–1439.
- 
41. Baler, R. D. & Volkow, N. D (2006). Drug addiction: the neurobiology of disrupted self-control. *Trends Mol Med*, 12(12), 559–566.
- 
42. McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D (2000). Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. *JAMA*, 284(13), 1689–1695.
- 
43. Prendergast, M. L., Podus, D., Chang, E., & Urada, D (2002). The effectiveness of drug abuse treatment: A meta-analysis of comparison group studies. *Drug Alcohol Depend*, 67(1), 53–72.
- 
44. Lurigio, A. J (2000). Drug treatment availability and effectiveness—studies of the general and criminal justice populations. *Crim Justice Behav*, 27(4), 495–528.
- 
45. Fletcher, B. W. & Chandler, R. K (2006). *Principles of drug abuse treatment for criminal justice populations*. Washington, DC: National Institute on Drug Abuse. NIH Publication No. 06–5316.
- 
46. Wormith, J. S., Althouse, R., Simpson, M., Reitzel, L. R., Fagan, T. J., & Morgan, R. D (2007). The rehabilitation and reintegration of offenders—The current landscape and some future directions for correctional psychology. *Crim Justice Behav*, 34(7), 879–892.
- 
47. Carroll, K. M., et al (2009). Enduring effects of a computer-assisted training program for cognitive behavior therapy: A six-month follow-up of CBT4CBT. *Drug Alcohol Depend*, 100, 178–181.

48. De Leon, G. (1997). Therapeutic communities: Is there an essential model? In G. De Leon (Ed.). *Community as method: Therapeutic communities for special populations and special settings* (pp. 3–18). Westport, Connecticut: Praeger.
- 
49. Volkow, N. D. & Li, T. K. (2005). Drugs and alcohol: Treating and preventing abuse, addiction and their medical consequences. *Pharmacol Ther*, 108(1), 3–17.
- 
50. Johnson, B. A., Rosenthal, N., Capece, J. A., et al. (2007). Topiramate for treating alcohol dependence: a randomized controlled trial. *JAMA*, 298(14), 1641–1651.
- 
51. Humphreys, K., Wing, S., McCarty, D., Chappel, J., Gallant, L., Haberle, B., et al. (2004). Self-help organizations for alcohol and drug problems: Toward evidence-based practice and policy. *J Subst Abuse Treat*, 26, 151–158.
- 
52. McCollister, K. E., French, M. T., Prendergast, M. L., Hall, E., & Sacks, S. (2004). Long-term cost effectiveness of addiction treatment for criminal offenders. *Justice Q*, 21(3), 659–679.
- 
53. Stephan, J. J. (2004). *State prison expenditures, 2001*. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics, DOJ publication no. NCJ 202949.
- 
54. Rich, J. D., Boutwell, A. E., Shield, D. C., Key, R. G., McKenzie, M., Clarke, J. G., et al. (2005). Attitudes and practices regarding the use of methadone in US state and federal prisons. *J Urban Health*, 82, 411–419.
- 
55. Rich, J. D., McKenzie, M., Shield, D. C., et al. (2005). Linkage with methadone treatment upon release from incarceration: A promising opportunity. *J Addict Dis*, 24(3), 49–59.
- 
56. Gordon, M. S., Kinlock, T. W., Schwartz, R. P., & O'Grady, K. E. (2008). A randomized clinical trial of methadone maintenance for prisoners: Findings at 6 months post-release. *Addiction*, 103(8), 1333–1342.
- 
57. Daley, M., Love, C. T., Shepard, D. S., Petersen, C. B., White, K. L., & Hall, F. B. (2004). Cost-effectiveness of Connecticut's in-prison substance abuse treatment. *J Offender Rehab*, 39(3), 69–92.

58. Flynn, P. M., Kristiansen, P. L., Porto, J. V., & Hubbard, R. L. (1999). Costs and benefits of treatment for cocaine addiction in DATOS. *Drug Alcohol Depend*, 57(2), 167–174.
- 
59. Zarkin, G. A., Dunlap, L. J., Hicks, K. A., & Mamo, D. (2005). Benefits and costs of methadone treatment: Results from a lifetime simulation model. *Health Econ*, 14(11), 1133–1150.
- 
60. Mumola, C. J. & Karberg, J. C. (2006). *Drug use and dependence, state and federal prisoners, 2004*. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics, DOJ publication no. NCJ 213530.
- 
61. Langan, P. A. & Levin, D. J. (2002). *Recidivism of prisoners released in 1994*. Washington, DC: Office of Justice Programs, Bureau of Justice Statistics. DOJ publication no. NCJ 193427.
- 
62. Simpler, A. H. & Langhinrichsen-Rohling, J. (2005). Substance use in prison: How much occurs and is it associated with psychopathology? *Addict Res Theory*, 13(5), 503–511.
- 
63. Binswanger, I. A., Stern, M. F., Deyo, R. A., et al. (2007). Release from prison—A high risk of death for former inmates. *New Engl J Med*, 356(2), 157–165.
- 
64. Field, G. (2004). Continuity of offender treatment: From the institution to the community. In K. Knight & D. Farabee (Eds.). *Treating addicted offenders: A continuum of effective practices*. Kingston, NJ: Civic Research Institute, 33–1–33–9.
- 
65. Shivy, V. A., Wu, J. J., Moon, A. E., Mann, S. C., Holland, J. G., & Eacho, C. (2007). Ex-offenders reentering the workforce. *J. Couns Psychol*, 54(4), 466–473.
- 
66. Chander, R. K., Fletcher, B. F., & Volkow, N. D. (2009). Treating drug abuse and addiction in the criminal justice system: Improving public health and safety. *JAMA*, 301, 183–190.
- 
67. Kinlock, T. W., Gordon, M. S., Schwartz, R. P., O’Grady, K., Fitzgerald, T. T., & Wilson M. (2007). A randomized clinical trial of methadone maintenance for prisoners: results at 1-month post-release. *Drug Alcohol Depend*. 91(2–3), 220–227.
- 
68. Kinlock, T. W., Gordon, M. S., Schwartz, R. P., & O’Grady, K. E. (2008). A study of methadone maintenance for male prisoners. *Crim Justice Behav*, 35(1), 34–47.

69. Nunn, A., Zaller, N., Dickman, S., Trimbur, C., Nijhawan, A., & Rich, J. D. (2009). Methadone and buprenorphine prescribing and referral practices in US prison systems: Results from a nationwide survey. *Drug Alcohol Depend.* 105(1–2), 83–88.
- 
70. Inciardi, J. A., Martin, S. S., Butzin, C. A., Hooper, R. M., & Harrison, L. D. (1997). An effective model of prison-based treatment for drug-involved offenders. *J Drug Issues*, 27(2), 261–278.
- 
71. Pearson, F. S. & Lipton, D. S. (1999). A meta-analytic review of the effectiveness of corrections-based treatments for drug abuse. *Prison J*, 79(4), 384–410.
- 
72. Peters, R. H. & Murrin, M. R. (2000). Effectiveness of treatment-based drug courts in reducing recidivism. *Crim Justice Behav*, 27(1), 72–96.
- 
73. Knight, K. & D. Farabee, (Eds.) (2004). *Treating addicted offenders: A continuum of effective practices*. Kingston, NJ: Civic Research Institute.
- 
74. Leukefeld, C. G., & F. Tims, & D. Farabee, (Eds.) (2002). *Treatment of drug offenders: Policies and issues*. New York, NY: Springer.
- 
75. Martin, S. S., Butzin, C. A., Saum, C. A., & Inciardi, J. A. (1999). Three-year outcomes of therapeutic community treatment for drug-involved offenders in Delaware: From prison to work release to aftercare. *Prison J*, 79(3), 294–320.
- 
76. Logan, T. K., Hoyt, W. H., McCollister, K. E., French, M. T., Leukefeld, C., & Minton, L. (2004). Economic evaluation of drug court: Methodology, results, and policy implications. *Eval Program Plan*, 27(4), 381–396.
- 
77. Mitchell, O., Wilson, D. B., & MacKenzie, D. L. (2007). Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the research. *J Exp Criminol*, 3(4), 353–375.
- 
78. Butzin, C. A., O'Connell, D. J., Martin, S. S., & Inciardi, J. A. (2006). Effect of drug treatment during work release on new arrests and incarcerations. *J Crim Justice*, 34(5), 557–565.

79. Cooper, C. S. (2003). Drug courts: Current issues and future perspectives. *Subst Use Misuse*, 38, 1671–1711.

80. Wilson, D. B., Bouffard, L. A., & Mackenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Crim Justice Behav*, 32(2), 172–204.

81. Madras, B. K., Compton, W. M., Avula, D., Stegbauer, T., Stein, J. B., & Clark, H. W. (2009). Screening, brief interventions, referral to treatment (SBIRT) for illicit drug and alcohol use at multiple healthcare sites: Comparison at intake and six months. *Drug Alcohol Depend*, 99, 280–295.

82. National Institute on Drug Abuse (2010). *NM ASSIST: Screening for drug use in general medical settings*. Available at: <http://ww1.drugabuse.gov/nmassist/>. Accessed January 25, 2010.

83. Wexler, H. K. & Fletcher, B. W. (2007). National criminal justice drug abuse treatment studies (CJ-DATS) overview. *Prison J*, 87(1), 9–24.

84. U.S. Department of Health and Human Services | National Institutes of Health. (2010). *Seek, test, and treat: Addressing HIV in the criminal justice system, request for applications* Number DA-10-017. 2010. Available at: <http://grants.nih.gov/grants/guide/rfa-files/RFA-DA-10-017.html>. Accessed January 29, 2010.

85. Dackis, C. & O'Brien, C. (2005). Neurobiology of addiction: Treatment and public policy ramifications. *Nat Neurosci*, 8(11), 1431–1436.

<FGN> Figure 2.1 </FGN> <FGC> Adult United States correctional populations, 1980–2008.

Source: <http://bjs.ojp.usdoj.gov/content/glance/corr2.cfm> </FGC>

<FGN> Figure 2.2 </FGN> <FGC> Admissions to prison for drug-related offense, by race/ethnicity (Iguchi et al., 2005),<sup>15</sup> based on data from Bureau of Justice Statistics, National Corrections Reporting Program, Washington, DC: US Department of Justice, 1983–2001. </FGC>

Table 2.1 | NIDA Principles of Drug Abuse Treatment for Criminal Justice Populations<sup>75</sup>

	<i>Treatment Principles</i>
1	<i>Drug addiction is a chronic brain disease that affects behavior</i>

2	<i>Recovery from drug addiction requires effective treatment, followed by continued care.</i>
3	<i>Duration of treatment should be sufficiently long to produce stable behavioral changes</i>
4	<i>Assessment is the first step in treatment</i>
5	<i>Tailoring services to fit the needs of the individual is an important part of effective drug abuse treatment for criminal justice populations</i>
6	<i>Drug use during treatment should be carefully monitored</i>
7	<i>Treatment should target factors that are associated with criminal behavior</i>
8	<i>Criminal justice supervision should incorporate treatment planning for drug abusing offenders, and treatment providers should be aware of correctional supervision requirements</i>
9	<i>Continuity of care is essential for drug abusers re-entering the community</i>
10	<i>A balance of rewards and sanctions encourages prosocial behavior and treatment participation</i>
11	<i>Offenders with co-occurring drug abuse and mental health problems often require an integrated treatment approach</i>
12	<i>Medications are an important part of treatment for many drug abusing offenders</i>
13	<i>Treatment planning for drug abusing offenders who are living in or re-entering the community should include strategies to prevent and treat serious, chronic medical conditions such as HIV/AIDS, hepatitis B and C, and tuberculosis</i>



Table 2.2 Intervention Opportunities in Criminal Justice Systems<sup>21</sup>

<i>STAGE</i>	<i>OFFENDER EVENT</i>	<i>PARTICIPANTS</i>	<i>INTERVENTION OPPORTUNITIES</i>
<i>ENTRY</i>	Arrest	Crime Victim Police FBI	Screening/Referral
<i>PROSECUTION</i>	Court Pre-trial Release Jail	Crime Victim Police FBI Judge	Diversion Programs Drug Courts Community-Based Treatment TASC <sup>a</sup>
<i>ADJUDICATION</i>	Trial	Prosecutor Defense Attorney Defendant Jury Judge	N/A
<i>SENTENCING</i>	Fines	Jury	Drug Court



	Community Supervision Incarceration	Judge	Terms of Incarceration Release Conditions
<i>CORRECTIONS</i>	Probation Jail Prison	Probation Officers Correctional Personnel	Drug Treatment
<i>COMMUNITY REENTRY</i>	Probation Parole Release	Probation/Parole Officer Family Community-Based Providers	Drug Treatment Aftercare Housing Employment Mental Health Halfway House TASC

<TFN> <sup>a</sup> TASC is the national Treatment Accountability for Safer Communities organization. Its interventions are based on a case management model for integrating criminal justice and drug abuse treatment services. </TFN>