

# Heroin Addiction



## Yesterday

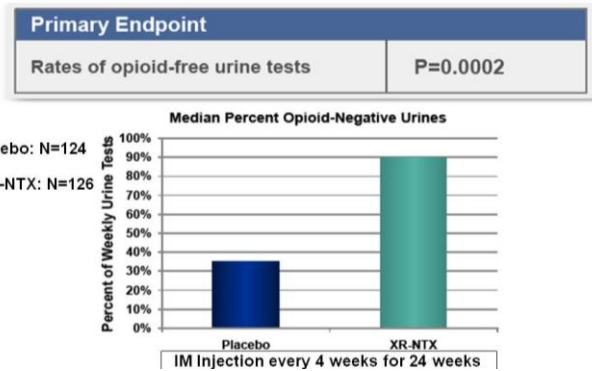
- In the 1960s, the most popular form of treatment for heroin addiction was “Civil Commitment,” which essentially placed heroin addicts in prison camps.
- After use of heroin (and other drugs) skyrocketed, methadone was tested and found to be an effective treatment for opiate addiction. In the early 1970s, public concern over veterans returning from Vietnam with heroin addiction prompted the government to establish a nationwide network of methadone treatment clinics.
- By the 1980s, heroin use was known to be associated with premature mortality, but the mechanisms were unknown. The emergence of AIDS gave new urgency to the need to treat heroin addicts, among whom HIV infection spread rampantly through the sharing of contaminated injection equipment.

## Today

### **Our knowledge of the opioid system has led to new medications for treating pain—and for treating opioid addiction.**

- The discovery of opiate receptors by NIH-supported researchers, along with enkephalin and endorphins — the naturally occurring chemicals that bind to them — marked a watershed event in neuroscience for understanding the effects of drugs in the brain. We now have a much better understanding of the opioid system’s role in regulating pain, mood, and other brain functions.
- Addiction (to opiates and other drugs) is recognized as a chronic, relapsing brain disease with a wide range of serious medical consequences. Findings from brain imaging studies in humans, along with basic cellular and behavioral research in animals, have identified profound disruptions in the specific brain circuits and cells that underlie addiction. These NIH-supported science advances enabled the development of better compounds for treating opiate addiction.
- Methadone remains an effective treatment option, but its use is limited because it is only available through specialized treatment clinics, which are often stigmatized. Further, this approach has been rejected by many foreign nations.
- Buprenorphine received FDA approval in 2002—marking a sea change in opioid addiction treatment. Not only is buprenorphine effective for detoxification and relapse prevention, but it can be prescribed in the privacy of a doctor’s office. A novel formulation combines this medication with the opiate blocker naloxone, which causes unpleasant withdrawal symptoms in those who try to abuse buprenorphine by injecting it. A growing willingness by community treatment programs to use buprenorphine signals a cultural shift toward greater acceptance of pharmacotherapies among treatment providers.
- Naltrexone, an opioid receptor blocker, that received FDA approval in 1984, was highly effective in reversing heroin overdose, but proved far less successful as a treatment to promote abstinence, due mostly to poor medication adherence. In October 2010, the FDA approved a depot, or long-acting, formulation of naltrexone (Vivitrol-see figure 1) for treating opioid addiction. Depot formulations obviate compliance concerns because their effects last for weeks rather than hours or days (e.g., one dose can last 6-8 weeks) (<http://www.springerlink.com/content/m7684071m405p877/fulltext.pdf>). Thus, patients do not need to motivate themselves daily to stick to a treatment regimen. This new option increases the pharmaceutical choices for treating heroin addiction, and may be seen as advantageous by those unwilling to consider agonist or partial agonist approaches to treatment.

## XR-NTX: Positive Phase 3 Results Opioid Dependence



**Figure 1. Vivitrol (a depot form of naltrexone-XR-NTX) diminishes opioid use, reduces craving, and keeps patients in treatment (Krupitzky et al., unpublished). Courtesy NIDA.**

- Effective medications, including buprenorphine and methadone, along with HIV risk reduction interventions in intravenous drug abusers, have substantially reduced the proportion of new HIV/AIDS cases attributable to injection drug use (see chart below).

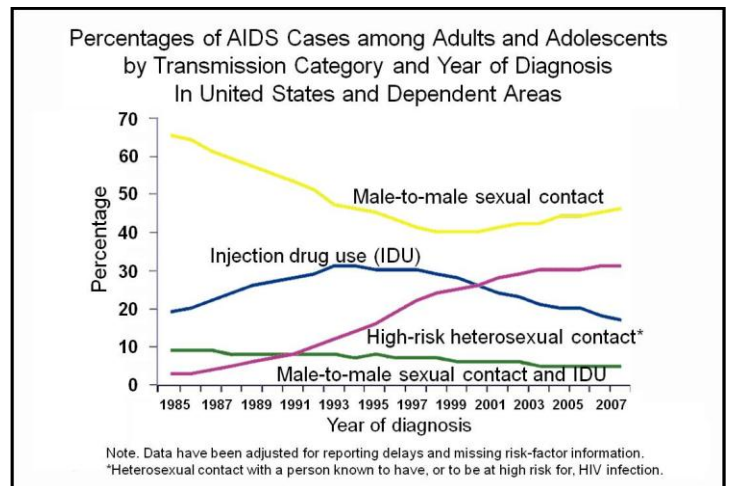
## Tomorrow

**Improvements in treatment options, along with continued active engagement of community treatment providers and the criminal justice system, will improve the adoption of pharmacotherapies for treating addiction in these settings.**

- Broader acceptance that heroin addiction is a chronic brain disease will help erase stigma, permit a more accurate assessment of disease prevalence, identify those with increased vulnerability, and improve the rate of treatment seeking. By moving forward with this multi-pronged approach, we will close the heroin treatment gap: currently, only about 20 percent of the estimated 810,000 heroin addicts seek or receive any form of treatment for their addiction.
- More than 200,000 people addicted to heroin pass through American correctional facilities each year. Opioid maintenance therapy can help this population: research shows, for example, that methadone

maintenance treatment, begun in prison and continued in the community post-release, can significantly reduce drug use, extend time in treatment, and reduce crime. Buprenorphine offers another promising intervention for prisoners with heroin addiction histories. Ongoing research collaborations that involve scientists working together with public health and safety personnel will help overcome barriers to adoption of these proven effective treatments.

- These advances will have a global impact not just on heroin addiction but on the spread of HIV, particularly in countries hit hard by the disease as a result of injection drug use. Research that seeks to improve and expand the use of drug abuse treatment programs, including medication interventions, in international settings has generated positive feedback based on successful results. This will encourage their wider adoption by countries that urgently need them.



**Contact: NIDA's Public Information and Liaison Branch  
301-443-1124 or [information@nida.nih.gov](mailto:information@nida.nih.gov)**

**National Institute on Drug Abuse (NIDA) website:  
[www.drugabuse.gov](http://www.drugabuse.gov)**