



Addiction to Heroin and Other Opiates

Developing Countries Need Strategies to Reduce Harm

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The illicit use of opiates—drugs derived from opium—has serious health and economic consequences in developed and developing countries alike. More than 15 million adults, or about 0.4 percent of the world's adult population, were estimated to be using these drugs in the early 2000s. One of the most common interventions to stop illicit opiate use, sending users to prison, has been shown to be the least effective way to address addiction to these drugs. More effective strategies take a medical approach to addiction and aim to reduce harm to the user.

What Are Illicit Opiates and Who Uses Them?

Opiates include heroin and opium, which are prohibited nearly everywhere, and drugs intended for medical purposes—morphine, methadone, and buprenorphine—that are diverted for illicit use. These drugs have a sedating effect and are highly addictive. Addicts typically use them for many years.

Data on illicit drug use is scarce in developing countries compared with developed countries, but use is likely to be highest in and around countries where the poppy is produced (Eastern Europe, and Central, South, and Southeast Asia) and prevalent to some degree in every region. The majority of illicit opiate users, 7.8 million, live in Asian countries that surround the two major opium-producing countries, Afghanistan and Myanmar.

Heroin accounts for more than half of illicit opiate use and is usually injected. Law enforcement efforts typically reduce the supply of the drug, thereby increasing its price and discouraging its use. People who use heroin despite these policies often turn to injection as the most efficient way to use an expensive drug. Moreover, because use is prohibited, users often share needles, putting them at risk of blood-borne viruses such as HIV and hepatitis C.

What Are the Health Consequences?

The three major health consequences of heroin use are addiction, illness and death due to overdoses, and viruses passed through the blood through the use of shared needles.

- Heroin addicts have an increased risk of premature death from drug overdose, violence, suicide, and alcohol-related causes, with opiate overdose the most frequent cause of death. Heroin-related deaths occur mainly among young adults and account for a large number of life years lost in developed countries. For example, in cities in Scotland and Spain, opiate-related deaths account for 25 percent to 33 percent of deaths among young adult men ages 15 to 35.
- In countries with a high prevalence of HIV infection, AIDS is a major cause of death among opiate users. In parts of Asia, Eastern Europe, and the United States, sharing contaminated needles accounts for a substantial proportion of new HIV infections. Injecting opiate use has been a major driver of HIV epidemics in China, Myanmar, Vietnam, Russia, and the former Soviet republics.
- Injecting drug users are also commonly infected with hepatitis B and C viruses; more than 60 percent of users in Australia, Canada, China, the United States, and Europe are infected, and 75 percent of the infections are chronic. Up to one-tenth of those with hepatitis C develop liver cirrhosis, which is often fatal.

Illnesses and deaths due to illicit opiate use were estimated to account for 0.7 percent of global disability-adjusted life years (DALYs) in 2000.¹ The estimates suggest that illicit opiate use is a significant cause of premature illness and death among young adults, yet they probably underestimate the total burden. In some countries, deaths may be attributed to hepatitis or violence rather than to opiate use.

Interventions to Reduce Opiate Dependence

PREVENTING HEROIN USE

Governments use a variety of interventions to prevent people from starting illicit drug use:

- Controlling the supply of opium in source countries;
- Making the possession, sale, and use of the drugs unlawful;
- Enforcing these sanctions through fines and imprisonment; and
- Supporting mass media and school-based education campaigns about the health risks of illicit drug use.

Because legal sanctions are often used to curb illicit drug use, imprisonment is the most common intervention for heroin users. In Asia and Eastern Europe, high rates of imprisonment of drug users have contributed to HIV transmission because many drug users share needles while in prison.

REDUCING HARM TO HEROIN USERS

According to the World Health Organization and UNAIDS, the most effective intervention to reduce infections of blood-borne viruses (HIV and hepatitis B and C) is to provide clean needles and syringes to injecting drug users. This intervention has been widely adopted in most developed countries, but is not supported in many developing countries because of concerns about facilitating illicit drug use.

Other ways to reduce harm to heroin users include:

- Educating heroin users about the dangers of combining the drug with alcohol or other sedatives, a practice that can lead to fatal overdose;
- Discouraging users from injecting in the streets or alone, where they may not receive assistance in the event of an overdose;
- Encouraging users who witness overdoses to seek medical assistance and use simple resuscitation techniques until help arrives; and
- Providing supervised injecting facilities in areas with high rates of injecting drug use (as has been done in some European countries).

TREATING HEROIN USERS

Treatment options include voluntary programs that use a combination of supervised withdrawal, counseling, self-help, and substitute medications, as well as involuntary treatment imposed by the criminal justice system. If carried out humanely and effectively, treatment also can reduce harm to users of heroin and other opiates.

- *Detoxification* is supervised withdrawal from a drug to minimize withdrawal symptoms. While not treatment, detoxification provides a break from opiate use as a prelude to abstinence-oriented treatment.
- *Abstinence-oriented treatments* provide some type of intervention after withdrawal to reduce the high rate of relapse to opiate use. The interventions may include social and psychological support—through self-help groups such as Narcotics Anonymous, drug counseling, or mental health services provided on an inpatient or outpatient basis. Group therapy and drug counseling may also be used in concert with medications and/or legal coercion.
- *Oral methadone maintenance treatment (MMT)* substitutes a long-acting, orally administered opiate for the shorter-acting heroin, with the aim of stabilizing heroin addicts so that they are amenable to counseling and behavior change. The methadone prevents withdrawal symptoms and attenuates the euphoric effects of injected heroin, allowing the individual to take advantage of psychological therapy and rehabilitative services.
- *Imprisonment* is the most common intervention for heroin users in developed and developing countries. It is not a health intervention; in fact, studies have shown high rates of relapse among imprisoned heroin users.
- *Legally coerced treatment* is most often given as an alternative to prison, with the threat of imprisonment if the person fails to comply with treatment. A consensus report prepared for WHO stated that compulsory treatment is legally and ethically justified if due process is followed and the treatment provided is ethical and humane. Studies have shown that drug users who joined therapy groups or received drug counseling or MMT under legal pressure did as well as those who did so voluntarily.

Cost-Effectiveness of Treatment Options

Nearly all cost-effectiveness studies of treating opiate users have been conducted in developed countries, making it difficult to translate the results directly for developing countries. Most studies in the last few decades have found that the benefits of MMT well exceed the costs. For example, a California study showed that the benefit-cost ratio for the first year of treatment was 4.8 for residential treatment (the more expensive option) and 11 for outpatients. Another study found that MMT saved an additional year of life for about \$6,000.

Comparing the cost-effectiveness of different treatment options is also difficult because they have different endpoints and outcomes. The following list ranks four commonly used treatments from the least to the most expensive:

- Detoxification with sedation, supervised on an outpatient basis, is the most efficient way to withdraw users from opiates.
- Self-help groups provide the simplest form of support after withdrawal from drug use and are low-cost because the patients bear most of the costs. However, uptake is only modest.
- Oral MMT is the most widely used treatment in developed countries, has a better uptake than other interventions, and is considered moderately effective.
- Drug-free residential treatment has a low rate of uptake and is expensive because of residence costs and intensive staff-patient interaction. It is effective for a minority of people who are retained in treatment long enough to benefit (usually three months); patients often stay under some form of legal coercion.

Calculating the burden of disease that could be averted through treatment requires making a number of assumptions about levels of opiate use and reduction in mortality that could be attained from specific types of therapy. Cost-effectiveness estimates have been modeled for MMT using current data on levels of opiate use in each world region. The model shows that a reduction in mortality of 35 percent would cost as little as \$128 per DALY in Africa, where illicit opiate use is very low (1/10,000 of the population), to a high of \$3,276 in Eastern Europe, where illicit opiate use is high (55/10,000). Across all regions, the average

cost-effectiveness ratio for MMT, to achieve a 35 percent reduction in mortality, is estimated at \$2,236 per DALY averted.

Transferring Knowledge to Developing Countries

Much of what is known about drug addiction and treatment programs is derived from experiences in developed countries, and wide differences among countries make it difficult to generalize these research findings. Barriers to transferring knowledge and experience include:

- Countries have diverse levels of illicit opiate use and in the resulting disease burden because of differences in the prevalence of injecting use, access to clean needles, and access to treatment.
- The financial and human resources available and the strength of the health care system affect countries' capacity to offer treatment to drug users.
- In some societies, a moral view of drug addiction dominates, in which addiction is seen as a voluntary behavior for which individuals should assume responsibility. Countries where this view prevails tend to adopt more punitive policies toward drug users; these countries also tend to adopt fewer measures to reduce harm, such as needle exchange programs and opiate maintenance treatment.

Supporters of medical models of addiction favor providing some form of opiate maintenance program and clean needles and syringes to reduce the transmission of HIV and other blood-borne viruses. Stronger advocacy by international organizations is needed to support more widespread adoption of harm-reduction programs worldwide.

Priorities for Developing Countries

The most important priority for developing countries is to identify safe, innovative, and inexpensive ways of delivering culturally acceptable forms of opiate maintenance treatments. Two main areas of research can help garner political support for such programs. Better estimates of levels of addiction to heroin and other opiates are needed, as are evaluations of the cost-effectiveness of various treatment programs, including self-help approaches, abstinence therapy, and opiate maintenance treatment.

Some experimentation may be necessary to identify the most affordable opiate substitute among several possible alternative drugs.

Drug-free treatment has been shown to be the least effective in keeping addicts off drugs over the long-term, yet it remains one of the most commonly adopted treatment options. Conversely, in spite of evidence showing the effectiveness, safety, and cost-effectiveness of opiate maintenance treatment for heroin users, support from many developed countries has been ambivalent. Replacing oral treatment with long-acting injections may improve the

efficacy, and therefore the public support, for such programs.

For More Information

Hall, W., C. Doran, L. Degenhardt, and D. Shepard. 2006. "Illicit Opiate Use." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. T. Jamison, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D.B. Evans, P. Jha, A. Mills, and P. Musgrove, 907-931. New York: Oxford University Press.

References

1. A disability-adjusted life year (DALY) is a composite measure that combines the number of years lived with a disability and the number of years lost to premature death.