



fact sheet

The Effectiveness of Harm Reduction in Preventing the Transmission of HIV/AIDS

Injection drug use is responsible for 10 percent of new HIV infections globally. Transmission occurs not only from sharing contaminated injection equipment but also through sexual transmission and perinatally from mother to child.¹ While abstaining from drug use is the best way to eliminate drug-related HIV risk, harm reduction programs help those who are unable or unwilling to abstain to make positive changes to protect their health and the health of others.²

The term “harm reduction” has various meanings, but it generally refers to methods of reducing health risks when eliminating them may not be possible. In the context of HIV prevention, harm reduction includes syringe or needle exchange programs (SEPs or NEPs), but it also includes drug addiction treatment.^{3,4}

Syringe Exchange Programs Reduce HIV Infection

Syringe exchange programs increase the availability of sterile syringes and enable the safe disposal of used syringes, thus decreasing the amount of contaminated injection equipment in circulation. Lowering the number of contaminated syringes reduces the chance of infection and lowers the risk of HIV transmission.³

Most SEPs are part of a comprehensive HIV prevention effort that includes HIV counseling and testing, education on reducing sexual and drug use-related health risks, referral to drug addiction treatment, and referral to other medical and social services.^{4,7}

Research in the U.S. and internationally has shown that SEPs, when implemented as part of a comprehensive HIV/AIDS prevention strategy, are an effective public health approach to reducing the spread of HIV and other diseases, such as hepatitis B and C. More specifically, research has shown that:

- SEPs are associated with reductions in the incidence of HIV, hepatitis B, and hepatitis C in the drug-using population, and, by extension, their families and communities.^{8,9}

- SEPs are associated with changes in injection and drug-related behavior among injection drug users (IDUs), thereby reducing risk of infection and transmission to others.^{3,10}
- The presence of SEPs in communities does not increase rates of drug use among existing users or encourage initiation of drug use.^{3,11}
- SEPs reduce the circulation of contaminated injection equipment in the community.¹¹⁻¹³
- The presence of SEPs in communities does not lead to a rise in crime, expanded networks of high-risk users, or more frequent drug use.^{3,14}
- SEPs are a cost-effective and cost-saving strategy for reducing HIV transmission.¹⁵

In a comprehensive review of 42 studies of the effectiveness of SEPs, 28 studies found positive effects associated with the use of syringe exchange, two found a negative effect, and 14 found no results or mixed results.¹⁶

Some examples of the efficacy of SEPs include:

- New York City has the nation’s largest population of injection drug users—an estimated 150,000 to 175,000 people, twice as many as the next largest urban population of IDUs. In 1992, SEPs received legal authorization and public funding from New York State to help control the HIV epidemic among IDUs and their partners and families. As a result, the incidence of new HIV infections fell from 4 percent per year in 1990–1992 to 1 percent per year in 1999–2002⁷, and the percentage of drug injectors in the city who were infected with HIV fell from 50 percent to 15 percent.¹⁷
- Analyses of interim data from HIV prevention projects targeting IDUs in northern Vietnam and southern China showed that drug-related HIV risk behaviors have decreased and HIV prevalence has been stable or declined as a result of the combined SEP and peer education interventions.¹⁸

- A review of data from 81 cities across Europe, Asia, and North America with and without SEPs found that, on average, HIV seroprevalence increased by 5.9 percent per year in the 52 cities without SEPs and decreased by 5.8 percent per year in the 29 cities with SEPs. This represents an 11 percent net difference in seroprevalence when comparing cities with and without SEPs.¹⁹
- In 1995, researchers studied the characteristics of averted HIV epidemics in five cities: Glasgow, Scotland; Lund, Sweden; Sydney, Australia; Tacoma, Washington (USA); and Toronto, Canada. Three similarities among the five cities were found: 1) implementation of prevention activities when HIV seroprevalence was low; 2) provision of sterile injection equipment; and 3) community outreach to injection drug users.²⁰ More than a decade later, the cities continue to implement these prevention activities, and rates of HIV infection among IDUs remain low (less than 5 percent in Toronto, Sydney, Glasgow, and Lund, and less than 2 percent in Tacoma).²¹
- A study commissioned by the Commonwealth Department of Health in Australia showed that by 2000, SEPs had prevented 25,000 HIV infections and 21,000 hepatitis C infections, and by 2001, had prevented 4,500 AIDS deaths.²²

Reviews of SEPs by preeminent public health officials, and by the research organizations and governmental agencies listed below, have all concluded that these programs are effective, safe, and cost-effective, and should be implemented where feasible. These reviews include:

- Institute of Medicine, National Academies of Science. *Preventing HIV Infection Among Injecting Drug Users in High-Risk Countries: An Assessment of the Evidence*. Washington, D.C.: National Academies Press; 2006.
- Institute of Medicine, National Academies of Science. *No Time to Lose: Getting More from HIV Prevention*. Washington, D.C.: National Academies Press; 2002.
- U.S. Department of Health and Human Services. *Evidence-Based Findings on the Efficacy of Syringe Exchange Programs: An Analysis for the Assistant Secretary for Health and Surgeon General of the Scientific Research Completed since April 1998*. U.S. Department of Health and Human Services: Washington, D.C.; 2000.
- National Institutes of Health Consensus Panel. *Interventions to Prevent HIV Risk Behaviors*. Bethesda, MD: NIH; 1997.

Injection Drug Use Remains a Significant Risk for HIV Infection in the U.S. and Globally

- 18.7 percent (6,548) of reported cases of new HIV infection in the U.S. in 2005 were attributed to injection drug use and/or sex with an injection drug user (based on reports from 33 areas with confidential name-based HIV infection reporting).⁴³
- In the U.S., 25.3 percent (11,175) of new AIDS cases reported in 2005 alone were attributed to injection drug use and/or sex with an injection drug user.⁴³
- According to 2005 statistics from 33 states and U.S. dependent areas, 26 percent of the estimated 126,964 female adults and adolescents in the U.S. currently living with HIV/AIDS became infected through injection drug use.⁴³
- According to the same report, 18 percent of the estimated 341,524 male adults and adolescents in the U.S. currently living with HIV/AIDS had been exposed through injection drug use. An additional 7 percent of males had been exposed to HIV through both injection drug use and male-to-male sexual contact.⁴³
- The African-American community has been particularly affected by the HIV/AIDS epidemic. Injection drug use is the second leading cause of HIV infection among black men and women.⁴³
- Globally, 10 percent of all HIV/AIDS cases are attributed to the use of contaminated injection drug equipment. Excluding Sub-Saharan Africa, this percentage rises to 30 percent.⁴⁴
- Injection drug use plays a significant role in propagating the emerging HIV/AIDS epidemics in Latin America, Eastern Europe, and Asia. In Eastern Europe and Central Asia, for example, two in three (67 percent) HIV infections in 2005 were attributed to the use of non-sterile injection drug equipment.¹
- In South and Southeast Asia, more than one in five (22 percent) HIV infections are attributable to injection drug use.¹
- Injection drug use is emerging as a potential factor in the HIV epidemics of several Sub-Saharan African countries, most notably Kenya, Tanzania, Nigeria, and South Africa.¹
- High HIV prevalence has been documented in several Middle Eastern and Northern African countries, most notably Iran and Libya. Although surveillance data are uneven, it is known that injection drug use occurs in many countries in this region, and that sharing of non-sterile injection equipment is common.¹

- Institute of Medicine, National Research Council. *Preventing HIV Transmission: The Role of Sterile Syringes and Bleach*. Washington, D.C.: National Academies Press; 1995.
- Office of Technology Policy Assessment of the U.S. Congress. *The Effectiveness of AIDS Prevention Efforts*. Washington, D.C.: U.S. Government Printing Office; 1995.
- Lurie P, Reingold AL, et al. *The Public Health Impact of Needle Exchange Programs in the United States and Abroad: Summary, Conclusions and Recommendations*. San Francisco: University of California, Berkeley; 1993.
- U.S. General Accounting Office. *Needle Exchange Programs: Research Suggests Promise as an AIDS Prevention Strategy*. Washington, D.C.: U.S. Government Printing Office; 1993.
- National Commission on AIDS. *The Twin Epidemics of Substance Abuse and HIV*. National Commission on AIDS: Washington, D.C.; 1991.

Drug Addiction Treatment Is Effective in Reducing HIV Infection

Numerous studies have demonstrated that substance abuse treatment programs can have a dramatic effect on HIV transmission among opiate injectors. Substitution therapy (also called agonist replacement therapy) is widely used in the management of opioid dependence, and is defined as the administration under medical supervision of a prescribed psychoactive substance with the capacity to prevent the emergence of withdrawal symptoms for people with substance dependence.²³ Methadone and buprenorphine are the most widely used medications for addiction to heroin and other opiates.³

There is strong and consistent scientific evidence that substitution therapy for heroin and other opiate drugs is effective in reducing illicit use and drug-related HIV risk behavior. It has been shown to lower the frequency with which people inject drugs and share equipment, and can lead to the cessation of injection drug use altogether.^{3, 24-26}

Drug treatment programs also provide up-to-date information, counseling, and testing services for HIV, hepatitis, and other STIs, and referrals to medical and social services.

The research evidence demonstrating the effectiveness of drug treatment in HIV prevention is well documented. For example, a study in Philadelphia showed that only 3.5 percent of methadone patients who had been in treatment continuously for 18 months became infected with HIV, compared to 22 percent of IDUs who were not in treatment.²⁷ Another study in Philadelphia showed that after 36 months, 8 percent of IDUs who were in treatment had become HIV-infected, compared to 30 percent of IDUs who were not in treatment.²⁸ A three-year study of methadone maintenance programs in New York City, Philadelphia, and Baltimore showed that 71 percent of in-treatment participants stopped injecting drugs (thereby eliminating injection-related HIV infection risk), while 82 percent of participants who left treatment relapsed rapidly into injection drug use.²⁶

In a comprehensive review of 38 studies on the effectiveness of methadone maintenance treatment, 34 showed that it reduced HIV risk behavior (e.g., frequency of injection and sharing injection equipment) and/or HIV infection rates. Seventeen of these studies showed positive benefits from methadone treatment when comparing in-treatment injection drug users versus out-of-treatment injection drug users.²⁹

Despite the demonstrated effectiveness of these programs in reducing HIV risk, the majority of people who need addiction treatment are unable to access it because of the shortage of available treatment programs throughout the country. It is estimated that only about 15 percent of injection opiate users are currently in treatment programs.³⁰ Furthermore, there is currently no proven pharmacologic therapy for cocaine users, making HIV risk reduction more difficult among this population.³¹

Harm Reduction Approaches Are Endorsed by Major Medical and Legal Organizations and Public Officials

Harm reduction, including syringe exchange programs, is supported by a variety of American scientific and professional organizations, including the American Medical Association, American Public Health Association, American Pharmaceutical Association, American Psychiatric Association, Association of State and Territorial Health Officials, National Association of State and Territorial AIDS Directors, National Association of Boards of Pharmacy, National Academy of Sciences/Institute of Medicine, American Academy of Pediatrics, American Bar Association, the U.S. Conference of Mayors, and the Centers for Disease Control and Prevention. Support for harm reduction has also been voiced by a variety of leading international organizations, including UNICEF, the World Bank, the International Red Cross-Red Crescent Society, and UNAIDS.

Of the public health leadership within the United States, three former U.S. surgeons general have endorsed harm reduction and syringe exchange programs. In March 2000, U.S. Surgeon General David Satcher conducted a review of all recent scientific research for the secretary of Health and Human Services and concluded: "After reviewing all of the research to date, the senior scientists of the Department and I have unanimously agreed that there is conclusive scientific evidence that syringe exchange programs, as part of a comprehensive HIV prevention strategy, are an effective public health intervention that reduces the transmission of HIV and does not encourage the use of illegal drugs."³²

Other federal public health officials have voiced support for local syringe exchange programs. These include former secretaries of Health and Human Services Louis Sullivan and Donna Shalala. Shalala, who served during the administration of President Bill Clinton, recommended lifting the ban against using federal funds for SEPs.^{33, 34}

Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, has repeatedly declared his support for harm reduction programs, particularly SEPs, as effective strategies for preventing HIV infection among injection drug users. He has addressed these comments to several international scientific meetings, including

the 14th International AIDS Conference in Barcelona in 2002³⁵ and the 4th International AIDS Society Conference on HIV Pathogenesis, Treatment, and Prevention in Sydney, Australia in 2007. At the Sydney conference, Dr. Fauci stated that “needle and syringe exchange programs and treatment programs for addiction have worked where utilized.”³⁶

Harm Reduction Is a Well-Established Approach in Public Health and Safety

Harm reduction strategies have been used in areas other than HIV and drugs to significantly reduce risk of injury or disease. Setting speed limits, passing laws requiring the use of seat belts and motorcycle helmets, and establishing the minimum age for alcohol consumption are all harm reduction strategies. In traffic safety, reduced speed limits and seat belt laws have reduced the likelihood of crashes and the severity of injuries sustained in those crashes.³⁷ Similarly, auto crashes and injuries have been reduced by raising the drinking age, reducing the allowable blood alcohol concentration for drivers, and enacting zero tolerance laws for young drivers.³⁸⁻⁴²

Harm reduction is now the mainstream approach to substance abuse and HIV prevention in many countries, including nearly all of Western Europe.



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1. UNAIDS. *Report on the Global AIDS Epidemic*. Geneva: UNAIDS; 2006.
2. Open Society Institute. *Fact Sheet: Saving Lives by Reducing Harm—HIV Prevention and Treatment for Injecting Drug Users*. 2006. Available at: www.soros.org/initiatives/health/focus/ihrd/articles_publications/publications/saving_20060818.
3. Institute of Medicine. *Preventing HIV Infection among Injecting Drug Users in High-Risk Countries. An Assessment of the Evidence*. Washington, D.C.: National Academies Press; 2006.
4. New York State AIDS Advisory Council. *Report on Needle Exchange Programs and Deregulation of Needles and Syringes*. 1996. Available at: <http://www.health.state.ny.us/diseases/aids/workgroups/aac/docs/needleexchangeprograms.pdf>.
5. Wodak A, Cooney A. Effectiveness of Sterile Needle and Syringe Programmes. *Int J Drug Policy*. 2005; 16S:S31–S44.
6. Strathdee SA, Patrick DM, Currie SL, et al. Needle Exchange is not Enough: Lessons from the Vancouver Injecting Drug Use Study. *AIDS*. 1997; 11(8):F59–65.
7. Des Jarlais DC, Perlis T, Arasteh K, Torian LV, Beatrice S, Milliken J, Mildvan D, Yancovitz S, Friedman SR. HIV Incidence among Injection Drug Users in New York City, 1990 to 2002: Use of Serologic Test Algorithm to Assess Expansion of HIV Prevention Services. *Am J Public Health*. 2005; 95(8):1439–44.
8. Des Jarlais DC, Marmor M, Paone D, Titus S, Shi Q, Perlis T, Jose B, Friedman SR. HIV Incidence Among Injecting Drug Users in New York City Syringe-Exchange Programmes. *Lancet*. 1996; 348(9033):987–91.
9. Hagan J, Des Jarlais DC, Friedman SR, Purchase D, Alter MJ. Reduced Risk of Hepatitis B and Hepatitis C Among Injection Drug Users in the Tacoma Syringe Exchange Program. *Am J Public Health*. 1995; 85(11):1531–37.
10. Bluthenthal RN, Kral AH, Gee L, Erringer EA, Edlin BR. The Effect of Syringe Exchange Use on High-Risk Injection Drug Users: A Cohort Study. *AIDS*. 2000; 14(5):605–11.
11. Petrar S, Kerr T, Tyndall MW, Zhang R, Montaner JSG, Wood E. Injection Drug Users' Perceptions Regarding Use of a Medically Supervised Safer Injecting Facility. *Addict Behav*. 2007; 32(5):1088–93.
12. Doherty MC, et al. Discarded Needles Do Not Increase Soon After the Opening of a Needle Exchange Program. *Am J Epidemiol*. 1997; 145(8):730–7.
13. Kaplan HE, Heimer R. A Circulation Theory of Needle Exchange. *AIDS*. 1994; 8(5):567–74.
14. Marx MA, Crape B, Brookmeyer RS, Junge B, Latkin C, Vlahov D, Strathdee SA. Trends in Crime and the Introduction of a Needle Exchange Program. *Am J Public Health*. 2000; 90(12):1933–6.
15. Lauffer FN. Cost-Effectiveness of Syringe Exchange as an HIV Prevention Strategy. *J Acquir Immune Defic Syndr*. 2001; 28(3):273–8.
16. Gibson DR, Flynn NM, Perales D. Effectiveness of Syringe Exchange Programs in Reducing HIV Risk Behavior and HIV Seroconversion among Injecting Drug Users. *AIDS*. 2001; 15(11):1329–41.
17. Des Jarlais DC, Perlis T, Arasteh K, Hagan H, Milliken J, Braine N, Yancovitz S, Mildvan D, Perlman DC, Maslow C, Friedman SR. “Informed Altruism” and “Partner Restriction” in the Reduction of HIV Infection in Injecting Drug Users Entering Detoxification Treatment in New York City, 1990-2001. *J Acquir Immune Defic Syndr*. 2004; 35(2):158–66.
18. Hammett TM, Kling R, Johnston P, Liu T, Ngu D, Friedman P, Binh KT, Dong HV, Van LK, Donghua M, Chen Y, Des Jarlais DC. Patterns of HIV Prevalence and HIV Risk Behaviors among Injection Drug Users Prior to and 24 Months Following Implementation of Cross-Border HIV Prevention Interventions in Northern Vietnam and Southern China. *AIDS Educ Prev*. 2006; 18(2):97–115.
19. Hurley SF, Jolley DJ, and Kaldor JM. Effectiveness of Needle-Exchange Programmes for Prevention of HIV Infection. *Lancet*. 1997; 349(9068):1797–800.
20. Des Jarlais DC, Hagan H, Friedman SR, Goldberg D, Frischer M, Green S, Tunving K, Ljungberg B, Wodak A. Maintaining Low HIV Seroprevalence in Populations of Injecting Drug Users. *JAMA*. 1995; 274(15):1226–31.
21. Des Jarlais DC. HIV Prevention for Injecting Drug Users: Lessons from North America. Presentation given at a meeting of the Institute of Medicine. 2005.
22. Drummond M. *Return on Investment in Needle and Syringe Programs in Australia*. Canberra: Commonwealth Department of Health and Ageing; 2002.
23. UNAIDS, WHO/UNODC/UNAIDS Position Paper. *Substitution Maintenance Therapy in the Management of Opioid Dependence and HIV/AIDS Prevention*. 2004. Available at: http://www.who.int/substance_abuse/publications/en/PositionPaper_English.pdf.
24. Hubbard RL, Marsden ME, Cavanaugh E, Rachal JV, Ginzburg HM. Role of Drug-Abuse Treatment in Limiting the Spread of AIDS. *Rev Infect Dis*. 1988; 10(2):377–84.
25. Yancovitz SR, Des Jarlais DC, Peyser NP, Drew E, Friedmann P, Trigg HL, Robinson JW. A Randomized Trial of an Interim Methadone Maintenance Clinic. *Am J Public Health*. 1991; 81(9): 1185–91.
26. Ball, JC, et al. Reducing the Risk of AIDS through Methadone Maintenance Treatment. *J Health Soc Behav*. 1988; 29(3):214–26.
27. Metzger DS, Woody GE, McLellan AT, O'Brien CD, Druley P, Navaline H, DePhillippis D, Stolley P, Abrutyn E. Human Immunodeficiency Virus Seroconversion among Intravenous Drug Users In- and Out-of-Treatment: An 18-Month Prospective Follow-Up. *J Acquir Immune Defic Syndr*. 1993; 6(9):1049–56.
28. McLellan AT, Woody GE, Metzger D, McKay J, Durrell J, Alterman AI, O'Brien CP. Evaluating the Effectiveness of Addiction Treatments: Reasonable Expectations, Appropriate Comparisons. *Milbank Q*. 1996; 74(1):51–85.
29. Gibson DR, Flynn NM, McCarthy JJ. Effectiveness of Methadone Treatment in Reducing HIV Risk Behavior and HIV Seroconversion Among Injecting Drug Users. *AIDS*. 1999; 13(14):1807–18.
30. Ball JC, Ross, A. The Effectiveness of Methadone Maintenance Treatment. New York: Springer Verlag; 1991.
31. Haverkos HW. HIV/AIDS and Drug Abuse: Epidemiology and Prevention. *J Addict Dis*. 1998; 17(4):91–103.
32. U.S. Department of Health and Human Services (HHS). *Evidence-Based Findings on the Efficacy of Syringe Exchange Programs: An Analysis for the Assistant Secretary for Health and Surgeon General of the Scientific Research Completed since April 1998*. Washington, D.C.: U.S. Department of Health and Human Services; 2000.
33. Sullivan L. Letter from Former Secretary, U.S. Department of Health and Human Services Louis W. Sullivan to The Honorable Speaker of the U.S. House of Representatives Dennis Hastert urging local communities to implement needle exchange programs. 1999. Available at: <http://www.glaa.org/archive/1999/sullivanneedles0730.shtml>.
34. HIV/AIDS Council Rebukes Clinton Administration. Group wants federal funding for needle exchange programs. AIPolitics CNN. 1998. Available at: <http://www.cnn.com/ALLPOLITICS/1998/03/17/needles/>.
35. Schoofs M, Zimmerman R. Activists' Chants Drown Out Thompson's Speech on AIDS. *The Wall Street Journal*. 2002. Available at: <http://www.actupny.org/reports/bcn/BCNthompson.html>.
36. Fauci A. HIV/AIDS in 2007: Much Accomplished, Much to Do. Presentation Given at the 4th International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention. 2007. Video available at: http://kaisernetwork.org/health_cast/hcast_index.cfm?display=detail&hc2226.
37. Transportation Research Board, National Research Council, Committee for Guidance on Setting and Enforcing Speed Limits. *Managing Speed: Review of Current Practice for Setting and Enforcing Speed Limits. Special Report #254*. Washington, D.C.: National Academies Press; 1998.
38. Shults RA, Elder RW, Sleet AD, et al. Reviews of Evidence Regarding Interventions to Reduce Alcohol-Impaired Driving. *Am J Prev Med*. 2001; 21(4 Suppl):66–88.
39. Wagenaar AC, Toomey TL. Effects of Minimum Drinking Age Laws: Review and Analyses of the Literature from 1960 to 2000. *J Stud Alcohol*. 2002; 14 (Suppl):206–25.
40. Jonah B, Mann R, Macdonald S. The Effects of Lowering Legal Blood Alcohol Limits: A Review. *Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety*. Stockholm, Sweden; 2001.
41. Hingson R, Heeren T, Winter M, Lower Legal Blood Alcohol Limits for Young Drivers. *Public Health Rep*. 1994; 109(6):738–44.
42. Wagenaar AC, O'Malley PM, LaFond C. Lowered Legal Blood Alcohol Limits for Young Drivers: Effects on Drinking, Driving, and Driving-After-Drinking Behaviors in 30 States. *Am J Public Health*. 2001; 91(5):801–4.
43. CDC. *HIV/AIDS Surveillance Report, 2005*. Atlanta: U.S. Department of Health and Human Services. 2005. Available at: <http://www.cdc.gov/HIV/topics/surveillance/resources/reports/2005report/pdf/2005SurveillanceReport.pdf>.
44. Beyrer C. HIV Epidemiology Update and Transmission Factors: Risks and Risk Contexts—16th International AIDS Conference Epidemiology Plenary. *Clin Infect Dis*. 2007; 44(7):981–7.