



# Why Overdose Matters for HIV

For most drug users and people who work with them, overdose is an urgent issue. Many AIDS, harm reduction, and other drug service organizations have created programs to educate people who use drugs about overdose prevention and response techniques; to distribute naloxone – a safe and highly effective opioid overdose antidote that is included in the World Health Organization’s Model List of Essential Medicines<sup>2</sup>; and to document the extent of overdose and the success of responses. But funding has been limited. Recently, the Global Fund to Fight AIDS, Tuberculosis and Malaria issued guidance that they will support these kinds of overdose prevention activities<sup>3</sup>. Other AIDS funders are beginning to follow this lead, and service providers should ensure that overdose services are available to their drug-using clients directly or through local referral networks. This document presents arguments that organizations can make to AIDS funders to show that overdose prevention and response matter for HIV programming.

*If you ever get in a meeting with some professional type people, tell ‘em that, you know, people like us – no, we’re not professionals, but if we have [naloxone] at hand we can save somebody’s life with this stuff... it’s a lifesaver, there’s no question.*

*Overdose program participant, Chicago<sup>1</sup>*

## What is naloxone?

Naloxone—also known by the brand name Narcan—is a safe, highly effective antidote to opioid overdose. It binds to the same receptors in the body that receive heroin and other opiates; it “kicks out” the opiates and reverses the respiratory depression that leads to death from overdose. Naloxone cannot get you high and has no potential for abuse. Naloxone is not a controlled substance, though in most countries it does require a doctor’s prescription.

# Background

In Eastern Europe and Central Asia, a report by the Eurasian Harm Reduction Network found that overdose was common in Kyrgyzstan, Latvia, Romania, Russia, and Tajikistan<sup>4</sup>. According to the report, Russia officially reported 9,354 overdose deaths in 2006, by far the highest rate in the region.

Overdose is a well-documented major cause of death among opioid users, and is an issue among stimulant users as well – especially people who use cocaine<sup>5 6 7 8</sup>. Drug users regularly experience and witness overdose; a survey in Russia found that 59 percent of injection drug users had experienced an overdose, and 81 percent had witnessed an overdose<sup>9</sup>. Drug overdose experiences start occurring soon after initiation of injection; one study in northern Vietnam found that 43 percent of injection drug users had experienced a non-fatal overdose in their lifetime (half of the study participants had been injecting for less than three years<sup>10</sup>). Drug users can and do respond to overdoses that they witness: nearly a third of respondents in a study in Bangkok, Thailand had experienced an overdose, while 68 percent had witnessed one, and the majority responded by performing first aid or taking the victim to the hospital<sup>11</sup>. As the people most likely



to be present at the time of an overdose, people who use drugs deserve the information and tools to enable them to respond most effectively.

At least 15 countries in Europe, Asia and North America currently have programs that provide overdose prevention education and distribute naloxone to opioid users. These programs train drug users as well as their friends and family members on how to use naloxone and provide aftercare to someone who has overdosed. Naloxone-based overdose prevention programs began in England, Germany, and the United States in the mid-1990s, and many are already showing results. The number of fatal overdoses declined by more than 30 percent in Chicago within three years of the overdose program's expansion in 2000<sup>12</sup>, and similar results have been documented in Baltimore<sup>13</sup>, San Francisco<sup>14</sup>, and the state of New Mexico<sup>15</sup>. A large-scale randomized controlled trial of naloxone distribution to prisoners upon release – called the N-ALIVE study<sup>16</sup> – is currently underway in England.

# Linking Overdose Prevention to HIV Efforts

Fatal and nonfatal overdose are serious public health concerns. Program implementers and health care providers who work with drug users should be trained in overdose prevention. Moreover, overdose prevention and response are necessary components of quality HIV programming for people who use drugs. The following are seven reasons why we must link HIV/AIDS services with overdose prevention and education.

**1. Overdose is a significant cause of mortality among people living with HIV.** Overdose has been documented as a leading – and in some cases the number one – cause of death among injection drug users living with HIV in many countries, including Canada<sup>17</sup>, the United States<sup>18</sup>, India<sup>19</sup>, Spain<sup>20</sup>, France<sup>21</sup>, and many others<sup>22 23 24 25 26 27 28 29</sup>. Overdose caused approximately 21 percent of all deaths among people living with HIV/AIDS in Russia in 2007, second only to tuberculosis<sup>30</sup>. Overdose often greatly exceeds HIV and other infectious disease as a cause of death among injection drug users<sup>31</sup>.

**2. HIV infection puts people who inject drugs at greater risk of fatal overdose.** HIV infection is associated with an increased risk of fatal overdose<sup>32 33</sup>, due in part to systemic disease and liver damage associated with HIV infection<sup>34</sup>. More broadly, compared to their non-injection drug using peers, annual mortality rates have been found to be 13-17 times greater among people who inject drugs, much of which is attributable to overdose<sup>35</sup>. HIV care and treatment providers should therefore prioritize providing overdose prevention support to their drug-using patients.

**3. Overdose prevention services connect people who use drugs to HIV prevention, drug treatment, primary health care, and other basic services.** Consistent experience from harm reduction organizations around the world suggests that overdose prevention programs help draw in new participants to HIV prevention services, subsequently building links to drug treatment, primary health care, HIV/HCV testing, care and treatment, and other health services. By expanding the breadth of care and support and addressing the priorities of people who use drugs, HIV prevention services may expand coverage and more effectively fight the HIV epidemic. People also often question behavior and circumstances that lead them to experience an overdose, which can result in positive

*We came to the jail and already people there had heard about naloxone. Rumors about our project had been spreading among drug users, which has definitely helped us attract more clients.*

Outreach worker in Naberezhnye Chelny,  
Russian Federation

change. Results from a prescription naloxone program found that in the six months following training on naloxone administration, participants had a decrease in injection frequency and were more likely to enter drug treatment<sup>36</sup>. After experiencing an overdose, about half of the participants in another study who talked to someone about drug treatment options enrolled in drug treatment<sup>37</sup>. Service providers can support such steps by providing referrals and actively facilitating access to the drug treatment services that people desire.

*I did SOMETHING, you know,  
that made a difference.*

*The whole world can't  
see it but I know it made  
a difference. And that's  
important ... to me.*

Overdose program participant,  
Chicago<sup>39</sup>

**4. Overdose prevention empowers people who use drugs and who have or are at risk of acquiring HIV.** Overdose education and naloxone distribution put powerful tools in the hands of people who use drugs, much as syringe exchange enables people to take charge of their health. In interviews with overdose program participants, saving someone's life from an overdose is consistently described as a profoundly moving experience. Research has shown that with appropriate training, people who use drugs are as skilled as medical providers in correctly recognizing overdose and assessing when

naloxone is indicated for use<sup>38</sup>. Considering the high prevalence of overdose, the safety and relatively low cost of overdose interventions, and the efficacy of peer response to overdose, people who use drugs should not be obstructed from taking steps to prevent overdose from occurring, or to reverse a witnessed overdose.

**5. Overdose may exacerbate HIV-related disease.** Nonfatal overdose is associated with a number of disease sequelae, including pneumonia, pulmonary edema, acute renal failure, rhabdomyolysis, immune suppression, physical injury, and other conditions<sup>40 41 42 43</sup>. Any of these outcomes may be made worse by HIV infection, or may lead to HIV-related complications. In settings where ARV delivery is not well integrated in the health system, nonfatal overdose with or without subsequent hospitalization may result in unplanned HIV treatment interruption. Respiratory illnesses commonly occur among HIV-positive individuals, such as tuberculosis, bacterial pneumonia, and other obstructive pulmonary diseases<sup>44 45 46 47</sup>; respiratory illnesses such as these may further put drug users at risk of overdose death following opioid-induced respiratory depression.

**6. Many of the same policies that increase risk of HIV infection among injection drug users also increase the risk of overdose; addressing overdose risk can impact HIV risk.**

State policies that criminalize and incarcerate people who use drugs or prioritize abstinence-based, often compulsory, drug treatment are well documented to increase the risk of HIV infection. These same policies and release from prison greatly increase the risk of overdose<sup>48 49 50 51 52 53 54 55 56</sup>. Health and social welfare programs that serve people who use drugs inside or exiting from these settings have an opportunity to support overdose prevention when people are at greatest risk for experiencing an overdose. In addition, structural interventions to address these overdose risks can also reduce HIV risk.

**7. Overdose is a serious concern among people living with HIV who use drugs.**

Virtually any survey of injection drug users shows that large majorities have both experienced and witnessed overdoses, and that a significant proportion have experienced multiple overdoses in their lifetime. In a study of injection drug users in the United States, 87 percent were strongly in favor of participating in an overdose management training program to receive take-home naloxone and training in resuscitation techniques<sup>57</sup>. The majority of drug users in a study in Australia reported positive attitudes toward naloxone distribution (89 percent said it was a “good” or “very good” idea) and 92 percent said they were willing to participate in a related training module<sup>58</sup>. A key component for successful programs working with people who use drugs is being responsive to the needs of the patients and clients themselves.

*INPUD recognizes that overdose is a major cause of death among people who use drugs. There are clear and effective ways of empowering people who use drugs to reduce their chances of overdose and to save the lives of their friends and peers when overdose does occur. We must strive to make available lifesaving information and technologies, especially for people living with HIV who may be at high risk of overdose. Failure to do so is a failure to support the health and human rights of people who use drugs.*

Mat Southwell, Project Manager,  
International Network  
of People Who Use Drugs

## In summary

National and international agencies that fund and implement health services for people who use drugs have an opportunity to reduce the growing, worldwide overdose epidemic. Experience has shown that overdose prevention and education and naloxone distribution to both illegal and legal opioid users can enhance HIV programming and are feasible and effective in many different settings, including harm reduction outreach programs, AIDS and drug treatment services, emergency medical departments, and prisons. Disease and death from overdose are unacceptable, preventable, and rightly within the mission of HIV and drug service organizations to address.



# References

1. Maxwell S, Bigg D, Stanczykiewicz K, Carlberg-Racich S. 2006. "Prescribing naloxone to actively injecting heroin users: A program to reduce heroin overdose deaths." *J Addictive Diseases* 25.
2. World Health Organization. *WHO Model List of Essential Medicines*. 16<sup>th</sup> List, March 2009. Online at: [http://www.who.int/entity/selection\\_medicines/committees/expert/17/sixteenth\\_adult\\_list\\_en.pdf](http://www.who.int/entity/selection_medicines/committees/expert/17/sixteenth_adult_list_en.pdf).
3. Global Fund to Fight AIDS, Tuberculosis and Malaria. April 2010. *Harm Reduction Information Note*. Geneva. Online at: [http://www.theglobalfund.org/documents/rounds/10/R10\\_InfoNote\\_HarmReduction\\_en.pdf](http://www.theglobalfund.org/documents/rounds/10/R10_InfoNote_HarmReduction_en.pdf).
4. Eurasian Harm Reduction Network. 2008. *Overdose: A major cause of preventable death in Central and Eastern Europe and Central Asia*. Vilnius.
5. Buxton JA, Skuteczky T, Tu AW, Waheed B, et al. 2009. "The context of illicit drug overdose deaths in British Columbia, 2006." *Harm Reduction Journal* v. 6 issue 9.
6. Khlifi M, Zun L, Johnson G, Harbison R. 2009. "Etiological characterization of acute poisonings in the emergency department." *J. Emerg Trauma Shock* 2(3):159-63.
7. Bernstein KT, Bucciarelli A, Piper TM, Gross C, et al. 2007. "Cocaine- and opiate-related fatal overdose in New York City, 1990-2000." *BMC Public Health*. 7:31.
8. Farrell M, Marsden J. 2008. "Acute risk of drug-related death among newly released prisoners in England and Wales." *Addiction*. 103(2):251-5.
9. Sergeev B, Karpets A, Sarang A, Tikhonov M. 2003. "Prevalence and circumstances of opiate overdose among injection drug users in the Russian Federation." *Journal of Urban Health* v. 80, n. 2. p. 212-219.
10. Bergenstom A, Quan VM, Nam LV, et al. 2008. "A cross-sectional study on prevalence of non-fatal drug overdose and associated risk characteristics among out-of-treatment injecting drug users in North Vietnam." *Substance Use and Misuse*, Vol. 43: 73-84.
11. Milloy M, Fairbairn N et al. 2010. "Overdose experiences among injection drug users in Bangkok, Thailand." *Harm Reduction Journal* 2010, Vol. 7, Issue 9.
12. Maxwell S, et al. 2006. *J Addict Dis* 25(3):8996.
13. MacGillis, A. 28 March 2005. "[Baltimore] City overdose deaths fell by 12% last year; Illicit drug toll of 261 in '04 was the lowest in 5 years." *Baltimore Sun*.
14. Drug Policy Alliance. 2009. *Preventing Overdose, Saving Lives*. New York. p. 7.
15. New Mexico Department of Health, Substance Abuse Epidemiology Unit. *New Mexico State Epidemiology Profile*, Spring 2005. 2005: viii, 23.
16. Parmar, M. 2008. 'NALoxone InVEstigation (N-ALIVE) pilot randomised controlled trial (RCT)'. Available at <http://www.controlled-trials.com/ISRCTN34044390/>, accessed May 20, 2010.
17. Tyndall MW, Craib KJ, Currie S, Li K, et al. 2001. "Impact of HIV infection on mortality in a cohort of injection drug users." *Journal of Acquir Immune Defic Syndr*, Vol. 28, Issue 4: 351-357.
18. Sackoff JE, Hanna DB, Pfeiffer MR, Torian LV. 2006. "Causes of death among persons with AIDS in the era of highly active antiretroviral therapy: New York City." *Ann Intern Med*, Vol. 145: 397-406.
19. Solomon SS, Celentano DD, Srikrishnan AK, Vasudevan CK, et al. 2009. "Mortality among injection drug users in Chennai, India (2005-2008)." *AIDS*. 15;23(8):997-1004.
20. Ferreros I, Lumbreras B, Hurtado I, et al. 2008. "The shifting pattern of cause-specific mortality in a cohort of human immunodeficiency virus-infected and non-infected injecting drug users." *Addiction*. Apr;103(4):651-9.
21. Bonnet F, Morlat P, Chêne G, Mercié P, et al. 2002. "Causes of death among HIV-infected patients in the era of highly active antiretroviral therapy, Bordeaux, France, 1998-1999." *HIV Med*. Jul;3(3):195-9.
22. Ferreros I, Lumbreras B, Hurtado I, Pérez-Hoyos S, et al. 2008. "The shifting pattern of cause-specific mortality in a cohort of human immunodeficiency virus-infected and non-infected injecting drug users." *Addiction*. Apr;103(4):651-9.
23. Perucci CA, Davoli M, Rapiti E, Abeni DD, et al. 1991. "Mortality of intravenous drug users in Rome: A cohort study." *Am Journal of Public Health* vol 81:1307-1310.
24. Oppenheimer E, Tobutt C, Taylor C, Andrew T. 1994. "Death and survival in a cohort of heroin addicts from London clinics: A 22-year follow-up study." *Addiction* vol 89:1299-1308.
25. van Ameijden EJ, Krol A, Vlahov D, Flynn C, et al. 1999. "Pre-AIDS mortality and morbidity among injection drug users in Amsterdam and Baltimore: An ecological comparison." *Subst Use Misuse* vol 34:845-865.
26. Tyndall MW, et al. 2001. *Journal of Acquir Immune Defic Syndr* vol 28:351-357.
27. Smyth B, Hoffman V, Fan J, Hser YI. 2007. "Years of potential life lost among heroin addicts 33 years after treatment." *Prev Med* vol 44:369-374.
28. Gossop M, Stewart D, Treacy S, Marsden J. 2002. "A prospective study of mortality among drug misusers during a 4-year period after seeking treatment." *Addiction* vol 97:39-47.
29. Zhang L, Ruan YH, Jiang ZQ, Yang ZN, et al. 2005. "A 1-year prospective cohort study on mortality of injecting drug users." *Zhonghua Liu Xing Bing Xue Za Zhi* vol 26:190-193.

30. Ermak TN, Kravchenko AV, Shakhgildyan VI, Ladnaya NN. 2009. "Causes of death among people living with HIV in Russia." Presentation at the All-Russian Congress on Infectious Disease; Moscow, Russian Federation, 30 March - 1 April, 2009.
31. Tyndall MW, et al. 2001. *Journal of Acquir Immune Defic Syndr* vol 28:351-357.
32. van Haastrecht HJ, Mientjes GH, van den Hoek AJ, Coutinho RA. 1994. "Death from suicide and overdose among drug injectors after disclosure of first HIV test result." *AIDS*, Vol. 8, Issue 12: 1721-5.
33. Rezza G, Conti S, Spizzichino L, Vlahov D, Ippolito G, Lelli V, Valenzi C. 1994. "Impact of HIV infection on non-AIDS mortality among Italian injecting drug users." *AIDS*, Vol 8, Issue 3.
34. Wang C, Vlahov D, Galai N, et al. 2005. "The effect of HIV infection on overdose mortality." *AIDS*, Vol. 19, Issue 9: 935-942.
35. Hickman M, Carnwath Z, Madden P, Farrell M, et al. 2003. "Drug-related mortality and fatal overdose risk: Pilot cohort study of heroin users recruited from specialist drug treatment sites in London." *Journal of Urban Health* vol 80:274-287.
36. Maxwell S, et al. 2006. *J Addict Dis* 25(3):8996.
37. Pollini RA, McCall L, et al. 2006. "Non-fatal overdose and subsequent drug treatment among injection drug users." *Drug Alcohol Depend* 83(2): 104-10.
38. Green TC, Heimer R, Grau LE. 2008. "Distinguishing signs of opioid overdose and indication for naloxone: an evaluation of six overdose training and naloxone distribution programs in the United States." *Addiction*, Vol. 103, No. 6: 979-989.
39. Maxwell S, et al. 2006. *J Addict Dis* 25(3):8996.
40. Warner-Smith M, Darke S, Day C. 2002. "Morbidity associated with non-fatal heroin overdose." *Addiction* vol 97:963-967.
41. Sporer KA. 1999. "Acute Heroin Overdose." *Annals of Internal Medicine*, Vol. 130, No. 7, 584-590.
42. Kumar R, West DM, Jingree M, Laurence AS. 1999. "Unusual consequences of heroin overdose: Rhabdomyolysis, acute renal failure, paraplegia and hypercalcaemia." *British J of Anaesthesia*, Vol 83, Issue 3: 496-498.
43. Curry SC, Chang D, Connor D. 1989. "Drug- and toxin-induced rhabdomyolysis." *Annals of Emergency Medicine*, Vol. 18, Issue 10: 1068-1084.
44. Drummond MB, Kirk GD, Ricketts EP, et al. 2010. "Cross sectional analysis of respiratory symptoms in an injection drug user cohort: the impact of obstructive lung disease and HIV." *BMC Pulm Med*. May 11;10(1):27.
45. Matteelli A, Richardson MD, Sotgiu G, et al. 2009. "Multidrug- and extensively drug-resistant TB in persons living with HIV." *Expert Rev Respir Med*. Jun;3(3):245-54.
46. Mussi-Pinhata MM, Motta F, Freimanis-Hance L, et al.; for the NISDI Perinatal Study Group 2010. "Lower respiratory tract infections among human immunodeficiency virus-exposed, uninfected infants." *Int J Infect Dis*. May 7.
47. Perelló R, Miró O, Marcos MA, et al. 2010. "Predicting bacteremic pneumonia in HIV-1-infected patients consulting the ED." *Am J Emerg Med*. May;28(4):454-9.
48. Hayashi K, Milloy MJ, Fairbairn N, Kaplan K, Suwannawong P, Lai C, Wood E, Kerr T. 2009. "Incarceration experiences among a community-recruited sample of injection drug users in Bangkok, Thailand." *BMC Public Health*. 9:492.
49. Verger P, Rotily M, Prudhomme J, Bird S. 2003. "High mortality rates among inmates during the year following their discharge from a French prison." *J Forensic Sci*, Vol. 48, No. 3.
50. Binswanger IA, Stern MF, Deyo RA, Heagerty PJ, et al. 2007. "Release from prison — A high risk of death for former inmates." *New England J of Medicine*, Volume 356:157-165.
51. Kerr T, Fairbairn N, Tyndall M, Marsh D, et al. 2007. "Predictors of non-fatal overdose among a cohort of polysubstance-using injection drug users." *Drug and Alcohol Dependence*, Vol. 87, Issue 1: 39-45.
52. Strang J, McCambridge J, Best D, et al. 2003. "Loss of tolerance and overdose mortality after inpatient opiate detoxification: follow up study." *BMJ*, May 3; 326(7396): 959-60.
53. Davoli M, Bargagli AM, Perucci CA, Schifano P, et al. 2007. "Risk of fatal overdose during and after specialist drug treatment: The VEdeTTE study, a national multi-site prospective cohort study." *Addiction*, Vol. 102, Issue 12: 1954 – 1959.
54. Farrell M, Marsden J. 2008. "Acute risk of drug-related death among newly released prisoners in England and Wales." *Addiction* vol 103:251-255.
55. Ravndal E, Amundsen EJ. 2010. "Mortality among drug users after discharge from inpatient treatment: An 8-year prospective study." *Drug and Alcohol Dependence*. Vol. 108, Issues 1-2: 65-69.
56. Bergenstrom A, et al. 2008. *Substance Use and Misuse*, Vol. 43: 73-84.
57. Seal KH, Downing M, Kral AH, Singleton-Banks S, et al. 2003. "Attitudes about prescribing take-home naloxone to injection drug users for the management of heroin overdose: a survey of street-recruited injectors in the San Francisco Bay Area." *J Urban Health*. Jun;80(2):291-301.
58. Kerr D, Dietze P, Kelly A-M, et al. 2008. "Attitudes of Australian heroin users to peer distribution of naloxone for heroin overdose: perspectives on intranasal administration." *J Urban Health*; 85(3): 352-60.