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Commentary

HIV prevention and treatment strategies can help address the overdose crisis

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ABSTRACT

Since the 1990s, effective HIV prevention and treatment strategies have been coordinated and implemented in the United States, resulting in substantial reductions in HIV-related death and HIV transmission among people who use injection drugs. During the same period, despite substantial long-term funding of War on Drugs policies, opioid addiction, driven by increased prescription opioid use and heroin accessibility, has made overdose the leading cause of accidental injury death in the United States. This commentary describes how the prevention and treatment successes among people who use drugs in the HIV/AIDS epidemic can be applied to address the opioid overdose crisis.

Introduction

Survival among people with HIV infection who inject drugs has improved substantially since the mid-1990s, narrowing the gap in survival with people who inject drugs but are not HIV-infected (Muga et al., 2007; Kohli et al., 2005; Vlahov et al., 2005; Wang et al., 2004). In 2009, 22% of people with HIV infection in the US reported injection drug use in their past, but only 11% of new HIV infections were among people who inject drugs (Broz et al., 2014; Centers for Disease Control and Prevention, 2012). Over the same period of time, overdoses have more than doubled and become the leading cause of injury death in the United States (Centers for Disease Control and Prevention, 2014). This increase has been driven by a dramatic expansion in use and misuse of prescription opioids and more recent increases in heroin use. A study among homeless medical patients in Boston that compared causes of death during the period 1988 to 1993 and the period 2003 to 2008 demonstrated that a 3-fold decrease in HIV mortality (84 deaths per 100,000 person-years) was replaced by a 3-fold increase in overdose-related mortality (242 deaths per 100,000 person-years) (Baggett et al., 2013).

The overlapping challenges of stigma, prevention, treatment, and fragmented access to care faced by people with HIV and people who use drugs have been described (Wakeman et al., 2014; Meyer et al., 2013). Several Central Asian countries are confronting concurrent rises in HIV transmission and overdose deaths driven by injection drug use, leading researchers to call for a syndemic approach, where public health addresses HIV and overdose together (Gilbert et al., 2013; Mathers et al., 2013). People living with HIV have a greater risk of overdose and are, thus, particularly affected by the overdose crisis (Green et al., 2012). In the United States where the HIV epidemic preceded the overdose crisis, we have the opportunity to look at successful prevention and treatment strategies from the HIV/AIDS epidemic among people who use drugs to model the development of interventions to address overdose (Table 1).

Prevention strategies

Addiction is a chronic brain disease, in which consequences, by definition, are not enough to persuade people to stop using substances. However, through education, people can modify their substance-using behaviors to make them safer so that HIV transmission and overdose are less likely. HIV counseling and testing programs educate people how HIV is transmitted, identify individual risk behaviors and provide behavioral strategies to reduce the likelihood of contracting or transmitting HIV infection, in the midst of determining who is infected. The overdose education component of overdose education and naloxone rescue kit (OEN) programs similarly reduces overdose risk behaviors by educating people how overdose occurs, identifying individual overdose risk behaviors, and providing behavioral strategies on how to reduce one's own overdose risk and how to respond to another person's overdose. HIV risk reduction counseling includes messages on using new injection equipment every time and washing it with bleach when there is no alternative. Overdose reduction counseling includes messages about preventing an overdose, such as using a small amount before taking a full dose and avoiding mixing opioids with other psychoactive substances, as well as, how to respond to another's overdose by calling for help and conducting rescue breathing.

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Table 1
Successful strategies for HIV/AIDS and parallel opportunities for overdose reduction.

Treatment <<-->> Prevention	Successful strategies for HIV/AIDS	Parallel opportunities for overdose reduction
	• HIV testing and risk reduction counseling	• Overdose risk assessment and reduction counseling
	• Needle-syringe distribution	• Naloxone rescue kit distribution
	• Targeted outreach /peer-driven interventions	• Targeted outreach /peer-driven interventions
	• Supervised injection facilities	• Supervised injection facilities
	• Anti-retroviral therapy and opioid agonist treatment	• Opioid agonist treatment
	• Comprehensive, collaborative, longitudinal care for individuals with HIV infection	• Comprehensive, collaborative, longitudinal care for individuals with addictions
	• Coordinated prevention and treatment strategy across public health and the healthcare system	• Coordinated prevention and treatment strategy across criminal justice, law enforcement, public health and healthcare systems
	• Major funding across public health and the healthcare system of evidence-based interventions	• Major funding across criminal justice, law enforcement, public health and healthcare systems of evidence-based interventions

For people who inject drugs, HIV risk reduction counseling and ready access to new, clean injection equipment have resulted in reduced HIV risk behaviors and transmission (Aspinall et al., 2014; MacArthur et al., 2014). When new, clean needles and syringes are provided, people use them and reduce their own and others' infection risk. Similarly, providing people who use opioids with naloxone rescue kits compliments overdose risk reduction and response training with a safe and effective antidote (Walley et al., 2013). The person receiving the naloxone rescue kit can use it to save others and train his or her network to use it in case he or she overdoses. As harm reduction interventions, both needle syringe programs and naloxone rescue kit programs have been challenged on the basis that they may create a moral hazard—encouraging people to use drugs by making it safer to use drugs. Studies that have looked for evidence of increased opioid use from either needle syringe programs (Guydish et al., 1993) or naloxone rescue kit programs (Doe-Simkins et al., 2014) have not found it.

Due to stigma, people high-risk for HIV and people high-risk for overdose are unlikely to receive effective risk reduction from the mainstream health system, (Van Boekel et al., 2013) particularly when they are actively using drugs. Even people who use prescription opioids are unlikely to have open discussions about overdose with prescribers. Therefore, outreach by providers with credibility with active users, such as peers, using a harm reduction approach has potential to deliver both HIV and overdose prevention to the people who are highest risk (Broadhead et al., 1998). In Canada, Australia, and several European countries, supervised injection facilities have been created to provide a safe place where people who inject drugs can access clean injection equipment, inject under the supervision of a nurse who is trained and equipped with a naloxone, access social services and addiction treatment. Longitudinal observational studies have demonstrated reduced syringe-sharing (69% reduction in a meta-analysis), overdose-related ambulance calls (68% reduction in Sydney, Australia) and overdose deaths (35% reduction in Vancouver, Canada) in the communities with supervised injection facilities (Marshall et al., 2011; Potier et al., 2014).

Treatment strategies

Many HIV providers originally reserved anti-retroviral treatment for those who were no longer using substances, believing that people actively using would not be able to take medication. However, many people who continue to use drugs can also take anti-retroviral medication successfully, which not only reduces their own risk of disease progression, but also reduces their risk of transmitting the virus to others. Treatment as prevention has been accepted and is now promoted as a key strategy for addressing the HIV epidemic (Montaner et al., 2014; Nosyk et al., 2013; Cohen et al., 2011). Treatment of opioid use disorders with opioid agonists, specifically methadone or buprenorphine, has also been recognized as an effective strategy to reduce injection risk behaviors and HIV transmission (MacArthur et al., 2014). Opioid agonists show similarly strong evidence for reducing overdose death rates in several observational studies (Schwartz et al., 2013; Clausen et al., 2009). People either waiting for treatment with opioid agonists or recently discharged from treatment have up to a 4-fold increased risk of overdose death. Therefore, reducing barriers to treatment for opioid addiction, as they have been reduced for HIV treatment, is an important step for preventing overdose deaths. While treatment is a fundamental prevention strategy for both HIV transmission and overdose prevention, not all patients are willing or able to engage in treatment at first. Furthermore, relapse is common in the course of severe substance use disorders and therefore, prevention strategies, including needle syringe programs and overdose prevention, play a complimentary roll along with treatment strategies.

Reduction in deaths among people with HIV infection was not only due to the development of anti-retroviral treatment, but also improving access to it. Broad federal funding of collaborative wrap around medical and social services to people with HIV in the 1990s and 2000s facilitated access to antiretroviral treatment and supported adherence, as well as met many of the other concrete needs of patients. Although the benefits from anti-retroviral treatment for people who inject drugs came later, they have come with the understanding that drug use should not exclude people from access to lifesaving treatment. To engage people who use opioids into overdose prevention and opioid treatment services, care systems should meet people at risk where they are at and address their immediate needs which includes stigma-free assistance accessing housing, legal and social services, primary medical care, and mental health care (Reece et al., 2014; Committee on Crossing the Quality Chasm, 2006). Examples of innovative integrated programs include methadone maintenance programs that integrate onsite HIV (Sorensen et al., 2012) and/or hepatitis C treatment (Stein et al., 2012) and buprenorphine/naloxone treatment delivered via a mobile van, also used for increasing needle–syringe access (Schwarz et al., 2012).

Coordinating care across systems

After earlier debate about whether the focus should be on prevention or treatment for the HIV epidemic, it became clear that prevention and treatment were closely linked. A more coordinated strategy between public health and the healthcare system has been employed to reduce the overall burden of HIV in the US and elsewhere. Ideally, this coordination occurs across systems and venues that have contact with people at risk for overdose. So far, the Centers for Disease Control and Prevention (CDC) have limited its recommendations to prevention of prescription opioid overdose. These recommendations include improve surveillance of overdose rates, better opioid prescriber education, expand the use of prescription drug monitoring programs by prescribers and pharmacists, expand laws that limit pain clinics that overprescribe, increase access to addiction treatment, and support safe, secure storage of medications at home (National Center for Injury Prevention and Control et al., 2011). The Substance Abuse Mental Health Services Administration has published an Opioid Overdose Toolkit which recommends: overdose prevention education among opioid users and their social networks, addiction treatment access for opioid users, access to naloxone rescue kits, calling 911 during an overdose, and use of prescription monitoring programs by prescribers (Substance Abuse and Mental Health Services Administration, 2014). Community coalitions focused on reducing overdoses that include prevention, treatment, affected families, and law enforcement stakeholders is one example of coordinating care across systems (Albert et al., 2011). Equipping law