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# Human Immunodeficiency Virus Prevention

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#### **KEYWORDS**

- HIV AIDS Prevention Behavioral intervention Biomedical intervention
- Treatment Medication adherence

#### **KEY POINTS**

- Human immunodeficiency virus (HIV) transmission can be prevented through reducing sexual risk and needle/equipment sharing.
- Primary and secondary prevention are essential to reducing HIV incidence and prevalence.
- Evidence-based interventions are classified into 3 categories: behavioral interventions, biomedical interventions, and linkage to, retention in, and re-engagement in HIV care.

#### INTRODUCTION

Human immunodeficiency virus (HIV) is the virus that causes AIDS. Surveillance data from 2012 indicate an estimated 1.2 million people aged 13 years and older were living with HIV infection in the United States, of whom 12.8% do not know their status. According to estimates from the Centers for Disease Control and Prevention (CDC), there are approximately 50,000 new HIV infections annually.<sup>1</sup>

#### **Human Immunodeficiency Virus Disparities**

Estimates from 2010 data on new HIV infections among subpopulations indicate the highest number of new HIV infections occurred among white men who have sex with men (MSM), followed by black and Hispanic/Latino MSM, accounting for approximately 72% of all new HIV infections in 2010.<sup>2,3</sup> Racial disparities exist in the rate of new HIV infections. Although black Americans accounted for 12% of the US population, they accounted for 44% of all new HIV infections in 2010. Black women represented 29% of all new HIV infections in 2010, a 21% decrease since 2008.<sup>2</sup>

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There are 4 modes of HIV transmission:

- 1. Sexual behavior
- 2. Sharing needles
- 3. Blood transfusions
- 4. Mother-to-child via pregnancy, childbirth, or breastfeeding

#### Human Immunodeficiency Virus Transmission

HIV in the United States is most commonly spread through oral, anal, or vaginal sex with a partner who is HIV positive or by sharing needles, or other equipment used to inject drugs, with someone who is HIV positive. Anal sex has the highest risk disease transmission, followed by vaginal sex, with receptive anal sex being riskier than insertive anal sex. Having multiple sexually transmitted infections (STIs), multiple sex partners, and nonmonogamous (concurrent) sex partners increases the risk for sexual transmission of HIV. Other less common modes of transmission in the United States include blood transfusions and perinatal transmission from HIV-positive pregnant mother to her child during pregnancy, birth, or breastfeeding. Although oral sex is less risky than anal and vaginal sex, giving fellatio (mouth to penis) and having a partner ejaculate semen into the partner's mouth are riskier oral sex behaviors.<sup>4</sup>

#### Human Immunodeficiency Virus Prevention

With no available cure for HIV, primary prevention to reduce incident cases of HIV is essential. The following strategies reduce HIV transmission<sup>5</sup>:

- Abstinence from oral, anal, and vaginal sex
- Engage in less risky sexual behaviors
- Correctly and consistently use condoms and latex barriers (such as dental dams) during oral, anal, and vaginal sex
- Limit the number of sex partners
- Get tested for HIV and other STIs and have sex partners engage in routine testing; the CDC recommends annual testing for sexually active individuals.
- Pre-exposure prophylaxis (PrEP) is a doctor-prescribed medication taken daily to prevent HIV infection; PrEP is recommended for HIV-negative individuals in a high-risk sexual relationship, which includes having a sex partner who is HIV positive.
- Postexposure prophylaxis is a doctor-prescribed medication that reduces the risk of HIV transmission for HIV-negative individuals who have possibly been exposed to HIV.

Primary prevention reduces transmission of HIV, ensuring fewer people become infected from individuals who are HIV positive. Secondary prevention is a key factor to prevent being infected with a new strain of HIV or infecting another person. Secondary prevention also reduces the severity of HIV by early identification of cases through testing and rapid intervention.<sup>6</sup>

#### Human Immunodeficiency Virus Risk Factors

In addition to encouraging safer sexual behaviors to prevent HIV transmission, research has examined the role of substance use and mental illness related to an increased risk for HIV infection. Among Medicaid beneficiaries with mental illness, reporting substance abuse/dependence was significantly predictive of new HIV diagnoses. However, in the absence of alcohol use, a serious mental illness (SMI) diagnosis was not associated with an increased risk of HIV acquisition.<sup>7</sup>

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