HIV Screening Recommendations

This is a PDF version of the following document:
Module 1: Screening and Diagnosis
Lesson 2: HIV Screening Recommendations

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Background and Definitions

History of HIV Testing in the United States

In 1985, the United States Food and Drug Administration (FDA) licensed the first HIV antibody test for the detection of HIV (Figure 1).[1] Two years later, in 1987, the United States Public Health Service issued recommendations for HIV testing of individuals with a high risk of acquiring HIV, mainly persons with a history of sexually transmitted infections and those who inject drugs; the 1987 recommendations included information regarding counseling, consent, and confidentiality.[2] The 1987 HIV testing recommendations were broadened in 1993 to include HIV testing of hospitalized patients, persons seen in acute care, and persons in emergency room settings.[3] Based on data that emerged showing antiretroviral therapy given to pregnant women with HIV markedly reduced perinatal HIV transmission, the CDC expanded HIV testing guidelines in 2001 and recommended routine HIV testing of all pregnant women.[4] In 2003, the CDC shifted from high-risk HIV testing to a new strategy of making HIV testing a routine part of medical care.[5] The 2003 recommendations served as a transition to the 2006 CDC recommendations to perform routine HIV screening for all persons 13 through 64 years of age in all health care settings.[6] Despite the 2006 recommendations, the CDC estimates that from 2006 through 2016, only 39.6% of noninstitutionalized adults in the United States had ever undergone a test for HIV.[7]

Definitions

The CDC has generated definitions related to HIV screening and testing.[6] These definitions are listed as follows:

- **HIV Screening**: Performing an HIV test for persons in a defined population.
- **HIV Diagnostic Testing**: Performing an HIV test for persons with clinical signs or symptoms consistent with HIV.
- **Targeted Testing**: Performing an HIV test for subpopulations of persons at higher risk, typically defined on the basis of behavioral, clinical, or demographic characteristics.
- **Informed Consent**: A process of communication between patient and provider through which an informed patient can choose whether to undergo HIV testing or decline to do so. Elements of informed consent typically include providing oral or written information regarding HIV, the risks and benefits of testing, the implications of HIV test results, how test results will be communicated, and the opportunity to ask questions.
- **Opt-out Screening**: Performing HIV screening after notifying the patient the test will be performed and providing the patient the opportunity to decline or defer testing. Assent is inferred unless the patient declines testing.

- **HIV Prevention Counseling**: An interactive process of assessing risk, recognizing specific behaviors that increase the risk for acquiring or transmitting HIV, and developing a plan to take specific steps to reduce risks.

Goals of Routine Screening

Identifying persons with HIV is the first step in the HIV care continuum. The primary desired outcomes associated with routine HIV screening are two-fold: (1) improve survival and quality of life for the person with HIV, and (2) prevent the person with HIV from transmitting HIV to others (Figure 2). Persons who have acquired HIV but have not yet been diagnosed, cannot obtain the benefits of modern antiretroviral therapy while they remain undiagnosed.

Rationale for Routine HIV Screening

Undiagnosed and late Diagnosis

Despite improvements in HIV screening rates and remarkable advances in HIV treatment, in 2021, an estimated 12.7% of persons with HIV in the United States had undiagnosed HIV.[8] In addition, among persons newly diagnosed with HIV during 2021 in the United States, 21% had stage 3 (AIDS) as defined by a CD4 count less than 200 cells/mm^3, a CD4 cell percentage of less than 14%, or a clinical AIDS-defining condition (Figure 3).[9] Most individuals who have stage 3 HIV disease at the time of first HIV diagnosis have been living with HIV for many years; this delayed diagnosis represents a missed opportunity for receiving antiretroviral therapy that would have reduced their HIV-related morbidity and lowered their risk of transmitting HIV to others.[10,11,12]

Undiagnosed HIV and Disproportionate HIV Transmission

Investigators from the CDC have utilized the Progression and Transmission of HIV (PATH 2.0) model to estimate 2016 HIV transmissions and HIV transmission rates among persons with HIV in the United States, including stratification based on awareness of HIV status.[13] In a model developed based on 2016 data, the estimated overall transmission rate for all persons with HIV was 3.5 per 100 person-years, but among those with HIV who were unaware of their HIV diagnosis, the rates were markedly higher—16.1 per 100 person-years for those with acute undiagnosed HIV, and 8.4 per 100 person-years in those with undiagnosed chronic HIV.[13] Using the CDC PATH 2.0 model, the CDC estimated that the 14.5% of persons with HIV in 2016 who were unaware of their HIV status accounted for 37.5% of all HIV transmissions in the United States during that year (Figure 4).[13] Prior models have also shown that persons with HIV who are unaware of their HIV diagnosis have a markedly higher HIV transmission rate when compared with those who are aware of their HIV diagnosis.[14,15]

Reduced HIV Transmission with Antiretroviral Therapy

In the HPTN 052 Study, 1,763 HIV serodifferent couples (97% heterosexual) were followed, and early initiation of antiretroviral therapy reduced the number of HIV transmissions by 93%, thus demonstrating the profound impact that antiretroviral therapy can have on HIV transmission.[11,16] In the second phase of the European PARTNER, which focused on enrollment of serodifferent, same-sex male couples who had sexual activity without condoms, 972 couples had condomless anal sex a total of 76,088 times, and there were zero phylogenetically-linked HIV transmissions.[17] All available data now strongly suggest that persons who achieve and maintain undetectable plasma HIV RNA levels do not sexually transmit HIV to others— the concept of Undetectable equals Untransmittable or U = U.[18,19]

CDC HIV Screening Recommendations

Overview of Routine HIV Screening Recommendations

In 2006, the Centers for Disease Control and Prevention issued a recommendation to perform routine HIV screening for all adults and adolescents in all health care settings in the United States.[6] These 2006 recommendations also addressed indications for repeat HIV screening, consent and pretest information, indications for diagnostic tests, and screening of pregnant women.[6] The CDC HIV screening recommendations have been endorsed by numerous prominent national organizations and have led to a fundamental shift from risk-based screening to universal HIV screening. Further, the recommendation to not require formal written consent for HIV testing facilitated the implementation of HIV testing in busy clinical settings. Studies have shown that requirements for written consent serve as a barrier to HIV testing and that eliminating the requirement for written consent facilitates HIV testing.[20,21,22] The following summarizes the key aspects of these 2006 CDC HIV screening recommendations.[6]

Screening for HIV infection

Routine screening for HIV infection should be performed for the following groups:

- All persons 13-64 years of age and in all health care settings
- All persons diagnosed with tuberculosis
- All persons seeking treatment for sexually transmitted infections, including all persons attending sexual health clinics

Repeat Screening

Repeat HIV testing should be performed at least once a year for persons considered at high risk for acquiring HIV. All of the following groups are considered at high risk for acquiring HIV:

- Persons who inject drugs and their sex partners
- Persons who exchange sex for money or drugs
- Sex partners of persons with HIV
- Persons or their partners who have had more than one sex partner since their most recent HIV test

Note: In 2017, the CDC addressed the frequency of repeated HIV screening in men who have sex with men (MSM) and concluded no change was warranted in the 2006 recommendations.[23,24] These 2017 recommendations note that clinicians can consider the benefits of offering more frequent screening (e.g., once every 3 or 6 months) for MSM at increased risk for acquiring HIV.[24] Multiple guidelines recommend that all persons taking oral HIV preexposure prophylaxis (PrEP) medications should have HIV testing every 3 months and those taking long-acting injectable cabotegravir should have HIV testing every 2 months.[24,25,26] Persons without HIV who are taking doxycycline postexposure prophylaxis (doxy PEP) should have HIV testing every 3-6 months.[27]

Consent and Pretest Information

The following summarizes recommendations regarding the consent and counseling related to pretest information:

- The HIV screening process should be voluntary.
- Persons undergoing HIV testing should be informed that HIV testing will be performed unless they decline (opt-out screening).
- Written consent for HIV testing should not be required, since the general consent for medical care is considered sufficient to encompass consent for HIV testing.

Note: All states now have HIV testing laws that are consistent with CDC recommendations for consent (e.g., opt-out testing, part of the general medical consent form, and oral consent acceptable) and counseling (e.g. prevention counseling not required prior to HIV testing).[28]

Diagnostic Testing for HIV infection

Diagnostic HIV testing should be performed if a person has any of the following:

- Clinical signs or symptoms consistent with chronic HIV, an opportunistic illness characteristic of AIDS
- A clinical syndrome that suggests acute HIV in a person with recent sex or injection drug activity that would increase their risk for acquiring HIV

Note: Diagnostic testing for acute HIV requires laboratory-based testing that includes a plasma HIV RNA test.[29,30]

Screening Pregnant Women

The prevention of perinatal transmission of HIV is predicated on knowing the pregnant woman's HIV status so that women identified with HIV can receive antiretroviral therapy during pregnancy, and protocols for both mother and child can be implemented at delivery and postpartum. The following summarizes key aspects of the 2006 CDC HIV screening and testing recommendations for pregnant women:[6]

- Opt-out HIV screening is recommended for all pregnant women, with HIV testing performed as early as possible in the pregnancy.
- If a pregnant woman declines HIV testing, the medical provider should discuss and address the reasons for declining the test.
- In some circumstances, such as when a pregnant woman has a possible exposure to HIV during pregnancy, the test should be repeated in the third trimester, preferably prior to 36 weeks' gestation.
- If an woman presents in labor and has undocumented HIV status, an expedited HIV test should be performed, unless the woman declines HIV testing.

Note: The preferred expedited test is an HIV-1/2 antigen-antibody immunoassay.[31] All facilities with a maternity service and/or neonatal intensive care unit should have expedited HIV testing available on a 24-hour basis.[31] If the initial expedited HIV test is positive, then a follow-up HIV-1/2 differentiation immunoassay should be performed.[31]

Communicating Test Results

The CDC 2006 document on HIV testing recommends establishing definitive mechanisms to inform patients of their test results:[6]

- **Negative HIV Test Result**: Informing persons of negative HIV test results can be conducted without direct personal contact between the health care provider and the patient. In this situation, persons who test negative for HIV, but are considered to have a high risk for HIV acquisition, should be advised to get periodic retesting, and ideally, they should receive prevention counseling or have a referral for prevention counseling.
- **Positive HIV Test Result**: If the person tests positive for HIV, the positive test results should be communicated confidentially via personal contact from a physician, advanced nurse practitioner, physician assistant, nurse, counselor, or other skilled staff member. Part of the process of providing a positive HIV test result is to ensure the newly diagnosed individual is linked to clinical care, counseling, support, and prevention services.

Note: The CDC 2006 recommendations regarding communicating test results do not take into account the

current medical environment, where many individuals have immediate access to their test results via the electronic medical record. If the person undergoing HIV testing will have access to the test results through the electronic medical record, the medical provider should discuss a plan in advance and always ensure that direct personal contact occurs for positive HIV test results, even if the patient has already gained access to the test result information.

USPSTF HIV Screening Recommendations

In 2019, the U.S. Preventive Services Task Force (USPSTF) issued updated recommendations that maintained support for routine HIV screening.[32] The USPSTF recommendations have substantially and favorably impacted reimbursement for HIV testing.[33,34] The following summarizes the 2019 USPSTF recommendations:[32]

- **Routine HIV Screening**: Clinicians should screen all adults 15 to 65 years of age for HIV (Grade A Recommendation). The USPSTF recommends that screening should also be performed for adolescents younger than 15 years of age and persons older than 65, if they have increased risk for acquiring HIV, such as having new sex partners (Grade A recommendation).
- **Screening for HIV in Pregnancy**: All women should be screened for HIV during pregnancy, including those who present in labor and have not previously had HIV testing during the current pregnancy (Grade A Recommendation). In addition, HIV screening should occur with each pregnancy, unless the woman has been diagnosed with HIV (Grade A Recommendation).
- **Screening Intervals**: The USPSTF noted there is insufficient evidence to determine appropriate or optimal time intervals or strategies for repeat HIV screening but stated that repeat screening is reasonable for those (1) known to be at increased risk of acquiring HIV and (2) those who live or receive medical care in a high-prevalence setting.

Potential Barriers to Routine Screening

Barriers to Screening

To maximize the benefits of early HIV detection, it is important to understand potential barriers to HIV screening. The 1998 National Health Interview Survey, which included 21,408 participants, explored possible barriers to HIV testing and found that the main reason people did not get tested was that they did not perceive themselves to be at risk.[35] Subsequent studies have identified other barriers to testing, which can be broadly categorized as factors influenced by individual concerns, policies, laws, financial issues, and counseling and testing strategies.[36] A separate but related challenge to expanding HIV screening is identifying and addressing barriers to screening among clinicians.

Individual Concern

Individuals may avoid HIV testing because they are afraid of the result, they are fearful of how others in their lives (friends, family, partners) may react, or because of a lack of knowledge that HIV is a treatable disease. Education about HIV and its treatment can be helpful in alleviating fear. Couples HIV testing is an option for partners who might find it more acceptable to find out their HIV status at the same time. In some settings, such as in the prenatal and hospital settings, patient acceptance rates for HIV testing are greater than 90%.[37]

Legal Barriers

Studies have identified name-based HIV reporting and HIV criminalization as additional barriers to HIV testing. The CDC maintains an extensive list of state criminal law policies on HIV and sexually transmitted diseases.[38] As of 2022, there were 35 states with laws that criminalize HIV exposure.[38] Most of the HIV criminalization laws impose penalties on persons with HIV who are aware of their HIV diagnosis and engage in sexual activity with another person without prior disclosure of their HIV status.[38,39] These laws have generated intense public debate, especially since most were passed prior to the publication of multiple scientific studies that have shown persons with HIV who take antiretroviral therapy (and have consistently suppressed HIV RNA levels) do not transmit HIV sexually to others.[17,18,40] Further, HIV criminalization policies may reduce the frequency of HIV testing since knowledge of HIV status is required for culpability.

Financial Barriers

Offering free testing may improve screening rates. In addition, educating potential testers about antiretroviral treatment coverage through insurance programs or through the state-based AIDS Drug Assistance Program (ADAP) may encourage them to test. Multiple studies have shown that HIV screening is cost-effective.[41,42,43]

Counseling and Testing Procedures

In one study of individuals with a high risk of acquiring HIV who were surveyed at a sexually transmitted diseases (STD) clinic, a needle exchange, and three sex venues for men who have sex with men, participants reported a dislike of counseling, anxiety waiting for results, and venipuncture as reasons to avoid HIV testing.[36] Rapid testing platforms, alternative testing methods, such as oral fluid HIV testing, and the elimination of required written consent and pretest counseling may alleviate some of these concerns.[20,21,22] One study performed in San Francisco showed that eliminating the requirement for written consent resulted in significant and sustained increases in HIV testing rates.[22] Home-based testing kits, which do not require counseling, are also now available, though this method of testing has thus far had minimal impact on the testing behavior of persons at high risk for acquiring HIV; this may be due to a lack of awareness of home testing kits as well as to concerns about the cost of the kits and home testing procedures.[36,44]

Barriers to HIV Testing Among Clinicians

A comprehensive review of the literature in 2007 found that policy-level barriers, logistical barriers, and educational barriers were encountered across multiple practice settings (prenatal, emergency department, other medical settings).[46] The need to provide counseling and obtain written consent at the time of HIV screening previously served as a major barrier for clinicians, but the 2006 CDC testing recommendations proposed changing these requirements such that counseling and written consent should not be a prerequisite to HIV screening.[6] All 50 states now have laws that are consistent with the 2006 CDC HIV testing recommendations regarding consent and pretest counseling.[28] Logistical barriers to implementing routine HIV testing by clinicians included insufficient time to discuss the HIV testing process, competing priorities, and language barriers. Educational barriers included a lack of medical provider knowledge and training about HIV testing.[47,48]

Partner Services

Overview of Partner Services

Partner services, as defined by the Centers for Disease Control and Prevention (CDC), are a broad array of services that should be offered to individuals newly diagnosed with HIV and to their partners.[49,50] Partner notification (also known as contact tracing) is the central activity of partner services, and it is a process whereby the sex and/or drug injection partners of an index case (a person newly diagnosed with HIV) are informed of their exposure to infection and referred for counseling and testing. Other important partner services include prevention counseling, testing for other types of sexually transmitted infections, hepatitis screening and vaccination, timely linkage to medical care for persons newly diagnosed with HIV, and referral and linkage to other services, such as treatment for substance use disorders, housing support, or prenatal services. Partner services must be confidential, free of cost, voluntary, and comprehensive. In addition, even individuals who choose anonymous HIV testing should be offered partner services and retain anonymity by not being required to disclose their identity. Individuals who test positive for HIV anonymously should be encouraged to transfer to a confidential system to facilitate partner services, but this is not required.

Goals of Partner Services

The CDC notes that HIV partner services have three goals:[50]

1. Provide services to persons diagnosed with HIV, including counseling for risk reduction, linking them to HIV medical care, and generating referrals to other services the individual may need.
2. Ensure that partners of the person diagnosed with HIV, including sex partners and drug injection partners, are notified of their exposure to a person with HIV and assist them with HIV testing and counseling. Any of these partners who test positive for HIV should receive assistance linking them to HIV medical care.
3. Reduce transmission of HIV by helping newly diagnosed persons receive HIV clinical care and identifying any of their partners with HIV.

Benefits of Partner Services

Partner services benefit individuals diagnosed with HIV, their sex and/or injecting partners, and the community as a whole. Individuals who are diagnosed with HIV can be linked to medical care that can ultimately improve their quality of life and prolong their survival. Sex and/or injecting partners of individuals diagnosed with HIV can learn of their risk of HIV exposure and access testing, treatment, and preventative services, including PrEP. At the community level, partner services can improve disease surveillance and improve targeted screening programs, with the ultimate goal of decreasing community HIV transmission and incidence rates.

Challenges of Partner Services

Key challenges in implementing partner services include the acceptability to individuals newly diagnosed with HIV and addressing concerns about the potential harm that an individual newly diagnosed with HIV may experience from partner notification, including emotional or physical abuse or relationship dissolution. Studies have shown a high level of acceptability among persons with HIV and their partners, with no demonstrated evidence of harm from contact tracing. Nonetheless, health departments across the United States vary widely in the extent to which they provide partner services, which may be due to ongoing legal and ethical concerns such as confidentiality, criminalization of HIV transmission in some states, state-based statutes regarding duty or privilege to warn, and financial constraints.

Efficacy of Partner Services

Partners of an index patient can be notified through patient referral or provider referral; systematic reviews have concluded that provider referral is more effective than patient referral for ensuring the notification of the sex partners of individuals diagnosed with HIV.[51] An early randomized study in North Carolina found that patient referral was very ineffective, with only 7% of contacts in the patient-referral arm receiving notification of HIV exposure.[52] Not only is provider referral more effective, it is also more cost-effective.

Summary Points

- Increased HIV screening is essential in diagnosing persons with HIV, so they can receive antiretroviral therapy and thereby garner health benefits and reduce the risk of transmitting HIV to others.
- An estimated 1 in 5 persons have stage 3 (AIDS) at the time they are diagnosed with HIV.
- Individuals with HIV who are unaware of their HIV diagnosis are significantly more likely to transmit HIV than persons with HIV who are aware of their HIV status.
- Multiple studies have shown the profound impact of antiretroviral therapy on reducing sexual transmission of HIV. Persons who achieve and consistently maintain undetectable plasma HIV RNA levels do not sexually transmit HIV to others.
- In 2006, the Centers for Disease Control and Prevention issued recommendations for routine HIV screening, and these recommendations are widely endorsed by prominent national organizations.
- The 2006 CDC recommendations also include indications for repeat HIV screening, diagnostic testing, and prenatal testing.
- Multiple barriers exist for routine HIV screening, including a lack of perception of risk, concerns about confidentiality, and potential legal/criminal ramifications.
- Impediments to HIV screening also exist among clinicians and include policy, logistical, and educational barriers.
- Partner notification (also called contact tracing) is the central activity of partner services and is the process whereby the sex and drug injection partners of an index case are informed of their exposure to HIV and are referred for counseling and testing.
- The aim of partner services is to maximize HIV awareness, improve linkage to care among individuals newly diagnosed with HIV, increase disease surveillance, and ultimately decrease HIV incidence rates in the community.

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Figures

Figure 1 Timeline of HIV Screening and Testing Recommendations in the United States

Illustration: David Spach, MD

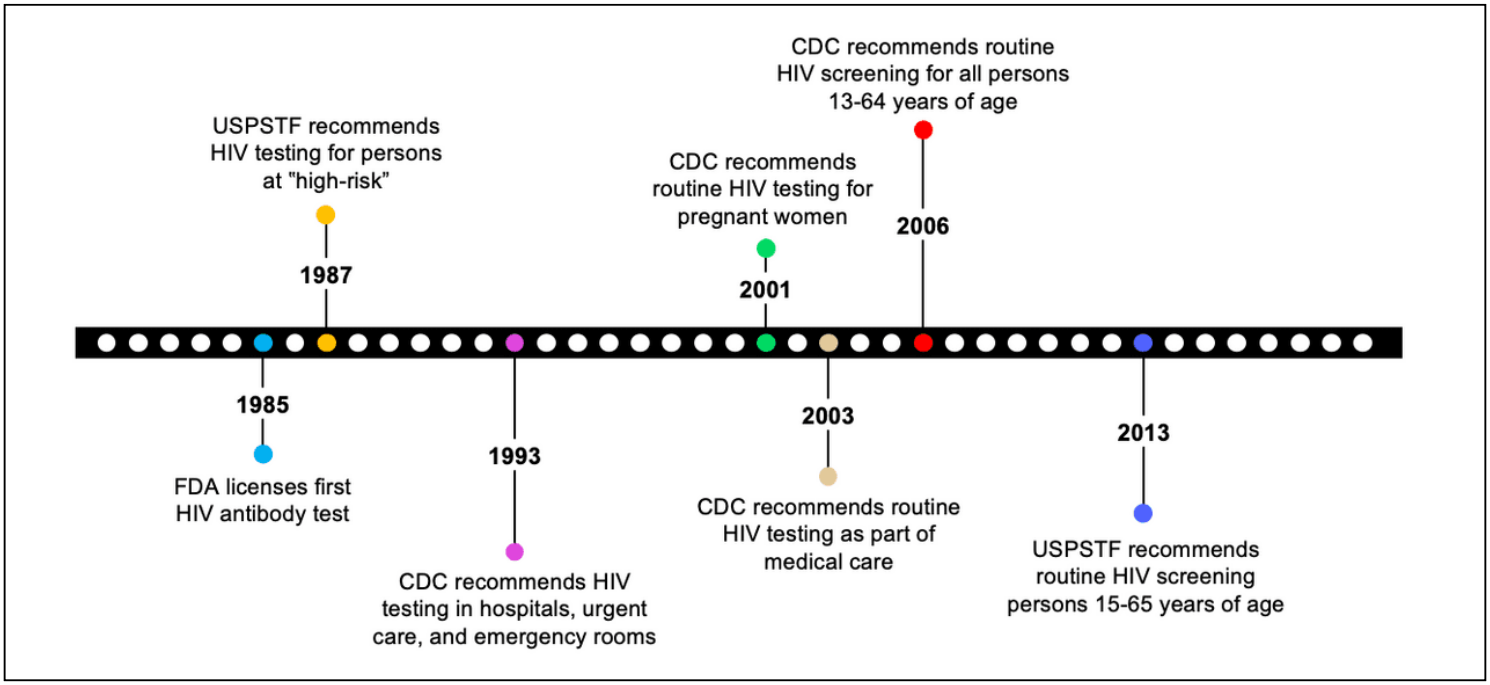

Figure 2 Goals of Routine HIV Screening

Identifying HIV has the dual benefit of providing treatment for the person with HIV and reducing transmission of HIV to others through awareness of HIV status and receipt of antiretroviral therapy.

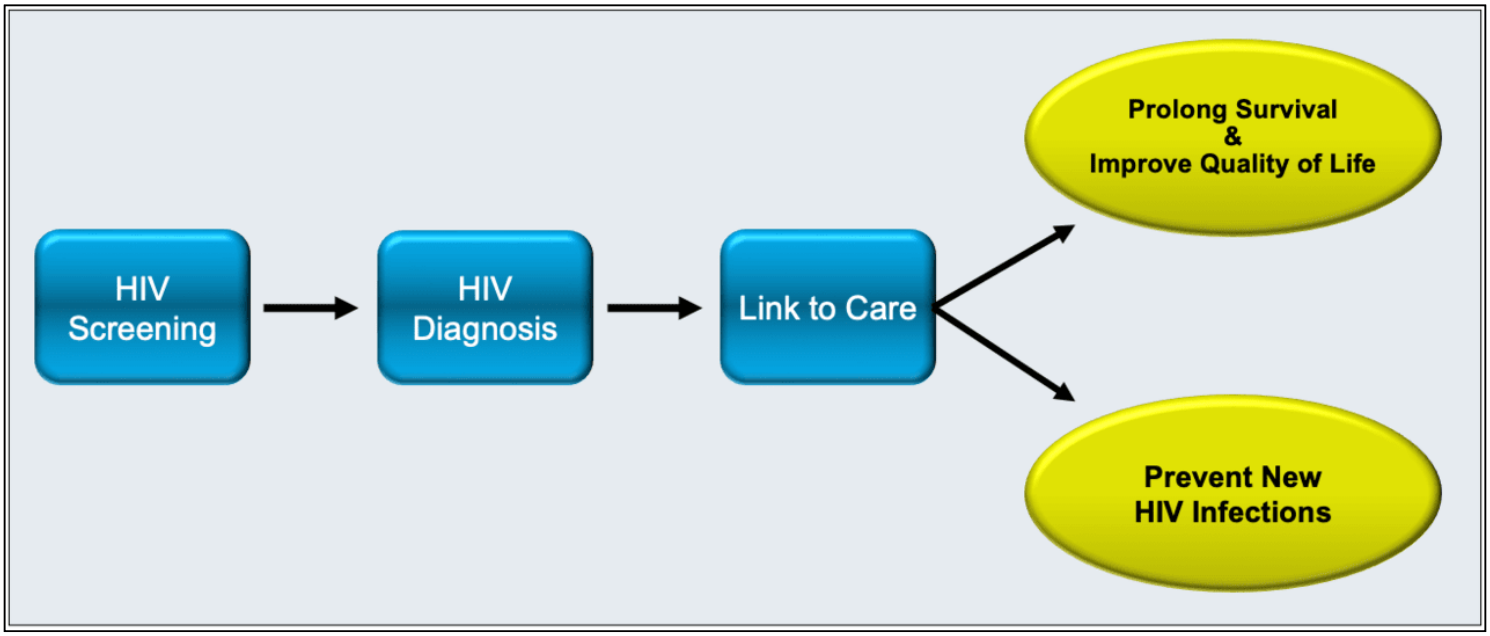

Figure 3 Stage of Disease at Time of HIV Diagnosis, 2021

Data from 45 states for new HIV diagnoses (age ≥13 years)
Stage 0 = Positive HIV test <6 months after a negative HIV test
Stage 1 = CD4 count >500 cells/mm^3
Stage 2 = CD4 count 200-499 cells/mm^3
Stage 3 (AIDS) = CD4 count <200 cells/mm^3, CD4% <14, or AIDS-defining clinical condition

Source: Centers for Disease Control and Prevention. Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance Data—United States and 6 Dependent Areas, 2021. HIV Surveillance Supplemental Report. 2023;28(No. 4). Published May 2023.

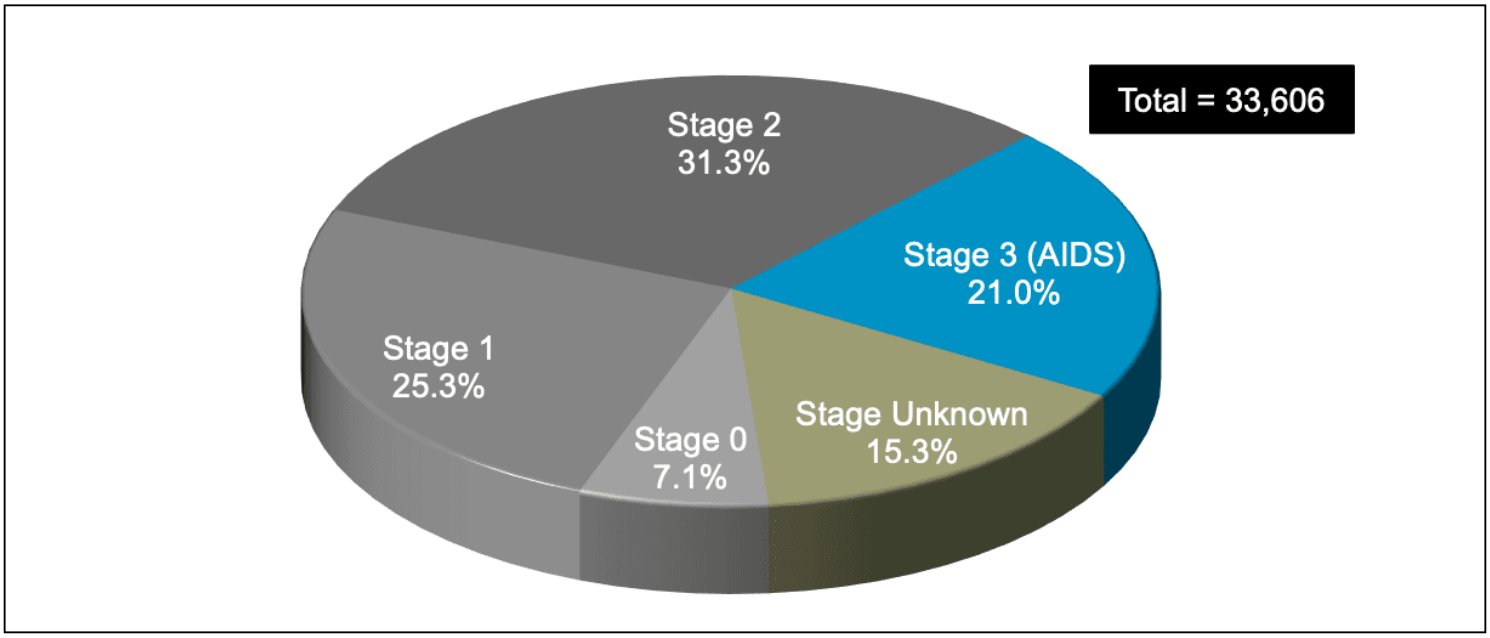

Figure 4 HIV Transmissions in the United States in 2016 Based on Awareness of HIV Infection

In this Progression and Transmission of HIV (PATH 2.0) model, the CDC estimated HIV transmissions and transmission rates in the United States in 2016, including stratification based on awareness of HIV infection.

Source: Li Z, Purcell DW, Sansom SL, Hayes D, Hall HI. Vital Signs: HIV Transmission Along the Continuum of Care - United States, 2016. MMWR Morb Mortal Wkly Rep. 2019;68:267-72.