Chapter 1. HIV Testing and Counseling

Background

Health care personnel in Massachusetts are required by statute to obtain verbal informed consent from the patient or his/her health care proxy prior to HIV antibody testing. An HIV antibody test can be ordered by a treating physician or authorized HIV counselor. Pretest and post-test counseling, while often useful, should not be construed by practitioners as a barrier to testing. All newly diagnosed cases of HIV infection are reportable to the Massachusetts Department of Public Health.

Epidemiology of HIV/AIDS and Risk of HIV Transmission

In 2009, 57% of newly diagnosed cases of HIV infection in the United States were transmitted by male-to-male sexual contact, 31% of cases by heterosexual contact, 9% of cases by injection-drug use, and 3% of cases by male-to-male sexual contact and injection-drug use. Thirty-four percent of cases were among persons aged 13 to 29 years, 24% among those aged 30 to 39 years, 25% among those aged 40 to 49 years, and 17% among those aged 50 years or older. In 2008, of males cases, 46% were among African Americans, 32% were among non-Hispanic whites, and 19% were among Hispanics; of female cases, 67% were among African Americans, 18% were among non-Hispanic whites, and 13% were among Hispanics.

Estimated HIV Transmission Rate Per Event by Exposure Route

- Transfusion of contaminated blood 90%
- Needle-sharing injection drug use 0.7%
- Unprotected receptive anal intercourse 1.0%
- Occupational needle-stick exposure 0.3%
- Unprotected receptive vaginal intercourse 0.2%
- Unprotected insertive vaginal intercourse 0.03%
- Unprotected insertive anal intercourse 0.07%
- Unprotected receptive oral intercourse 0.06%
- Unprotected insertive oral intercourse 0.005%

It is important to note that these figures are approximate and may vary depending on the viral load of the source, the presence of other sexually transmitted diseases in both persons, male circumcision (for insertive vaginal intercourse), and other factors.
**Guidelines**

In late 2006, the Centers for Disease Control and Prevention (CDC) recommended inclusion of HIV antibody testing as part of the routine health care of healthy adults and adolescents. The key points are as follows:

- All healthy adolescent and adult patients should be screened at least once during their lives after notification that an HIV test will be performed unless they decline (“opt-out” testing)
- Specific informed consent is unnecessary
- Persons at high risk for HIV infection should be screened at least annually
- Prevention counseling should be not required as part of routine HIV testing, but it is strongly encouraged for persons at high risk

HIV antibody testing should be never be construed by patients as coercive. As these federal recommendations are implemented over time, the hope is that a higher percentage of HIV-infected persons will become aware of their serostatus and that decreased HIV transmission will result through a reduction in risk behaviors and the institution of antiretroviral therapy.

**Traditional Indications**

These are divided into historical and clinical categories:

**Historical**

- Men who have sex with men
- Persons with multiple sexual partners
- Current or past injection-drug users (IDUs)
- Recipients of blood products between 1978 and 1985
- Persons with current or past sexually transmitted diseases
- Commercial sex workers and their sexual contacts
- Persons who have been sexually assaulted
- Persons who have had occupational exposures
- Pregnant women and women of childbearing age
- Children born to HIV-infected mothers
- Sexual partners of those at risk for HIV infection
- Persons who consider themselves at risk or request testing

**Clinical**

- Tuberculosis
- Syphilis
- Recurrent shingles
• Unexplained chronic constitutional symptoms
• Unexplained generalized adenopathy
• Unexplained chronic diarrhea or wasting
• Unexplained encephalopathy
• Unexplained thrombocytopenia
• Thrush or chronic/recurrent vaginal candidiasis
• HIV-associated opportunistic diseases (e.g., *Pneumocystis* pneumonia, Kaposi’s sarcoma)
• Suspected primary HIV syndrome

Primary HIV infection is a nonspecific viral illness that occurs on average two weeks after exposure and is characterized by fever, adenopathy, pharyngitis, rash, and myalgia/arthralgia. It should be considered in the patient with a prolonged or atypical viral illness or with Epstein-Barr virus (monospot)-negative mononucleosis-like syndrome. In the patient with suspected primary HIV infection or recently acquired HIV infection (less than three months prior), both an HIV antibody test and viral load are necessary for diagnosis. A negative or indeterminate antibody test in conjunction with a very high viral load (often millions of copies/ml) is characteristic of primary HIV infection. Low titer false-positive HIV viral load assays have been reported in persons with acute non-HIV-related illness, so caution is advised in their interpretation in this setting.

**Contraindications**

• Inability of patient to understand implications of test result
• Acute psychosis
• Major depression or suicidality
• Lack of adequate personal support system

**Potential Benefits and Risks**

• Individual health benefits include antiretroviral therapy, prophylaxis for opportunistic infections, screening and prophylaxis for tuberculosis, screening for and treatment of syphilis and other sexually transmitted diseases, administration of appropriate vaccinations, and institution of other health care maintenance measures
• Public health benefits include decrease in HIV transmission through identification of primary HIV infection, reduction of high-risk behaviors and lowering of viral loads, and monitoring of HIV infection epidemiology
• Risks include false-positive test result, false-negative test result, adverse psychological reactions, breach of confidentiality, and social discrimination
Pretest Counseling

Pretest counseling often includes the following:

- Distinguishing between anonymous and confidential testing and discussing the availability of home-testing kit
- Reviewing natural history of HIV infection
- Reviewing reasons for testing and expectations
- Reviewing individual risk behaviors and risk-reduction measures
- Discussing meaning of positive and negative results
- Assessing personal and social supports

Conventional Testing Procedure

- HIV antibody testing is performed by using an enzyme-linked immunosorbent assay (ELISA), which is a highly sensitive test
- If this result is negative, the HIV antibody test is reported as negative
- If this result is positive, the ELISA is generally repeated
- If the repeat test is positive, a Western blot (WB) assay, which is more specific, is performed for confirmation
- If WB assay result is positive (2 or 3 out of 3 characteristic bands present), the HIV antibody test is reported as positive
- WB results are occasionally described as indeterminate (1 of 3 characteristic bands present); in these instances, supplemental testing (e.g., HIV viral load) is recommended
- An indeterminate WB may indicate the presence of recent HIV-1 infection or of HIV-2 infection, which is endemic in West Africa
- A low CD4 cell count is not diagnostic of HIV disease and should never be used in lieu of HIV antibody testing

Rapid immunoassay tests (e.g., OraQuick) that detect HIV antibody in blood or oral fluid within 20 minutes have been developed. These enable clinicians to provide definitive negative and preliminary positive results immediately. A positive rapid HIV antibody test should be confirmed with the more specific WB.

Newer HIV diagnostic modalities (e.g., fourth-generation combination of antibody and p24 antigen assays) may change the testing paradigm in the future.
Post-test Counseling

Post-test counseling often includes the following:

- Reviewing meaning of test results and implications
- If test result is positive:
  Assessing patient's reaction and ability to cope
  Anticipating need for immediate support and follow-up plan for medical evaluation
- If test result is negative:
  Restating possibility of acquiring HIV infection if patient is involved in high-risk activities
  Dispelling any false beliefs regarding invulnerability or immunity to HIV infection

Risk Reduction Counseling

Risk reduction counseling is an important component of both pretest and post-test counseling. It should include the following advice:

- Reduce or limit the number of sexual partners
- Use latex condoms with water-based lubricant for all sexual activity
- Detoxification or methadone maintenance program for IDUs
- Use sterile needles; however, if equipment is shared, make sure it is cleaned with bleach as recommended
- Do not share personal items such as razors and toothbrushes