Human Immunodeficiency Virus (HIV)

Disease Plan

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Questions about this disease plan?

Contact the Utah Department of Health Bureau of Epidemiology: 801-538-6191.
**WHY IS HIV IMPORTANT TO PUBLIC HEALTH?**

Human immunodeficiency virus (HIV) is a retrovirus that affects the cellular immunity of those infected. HIV is the cause of acquired immunodeficiency syndrome (AIDS) and may lead to other health conditions and sometimes death. The first AIDS diagnoses in the United States were discovered in 1981 and since then, millions of deaths have been reported worldwide. As a result of recent advancements in antiretroviral therapy (ART) and increased access to medical care, individuals infected with the virus are no longer dying, but they continue to have adverse health effects throughout their lives. HIV has no cure or vaccine and remains inside the human body regardless of treatment. HIV infection may not be curable but is completely preventable. Efforts must continue to understand the populations being affected through public health surveillance and research. Prevention efforts, such as education, remain vital to reduce the spread of HIV.

**DISEASE AND EPIDEMIOLOGY**

**Clinical Description**

Infection with HIV produces a spectrum of disease that progresses from acute infection (Stage 0) to clinically latent or an asymptomatic state (Stage 1 or 2 – depending on age and CD4 cell counts) to AIDS (Stage 3). AIDS represents the most advanced stage of disease.

As the immune system weakens, a variety of complications start to appear:

- Some people have a flu-like illness within a month or two after exposure to the virus. This illness may include fever, headache, fatigue, enlarged lymph nodes, or a rash. These symptoms usually disappear within a week to a month and are often mistaken for those of another viral infection.
- Symptoms that may be experienced months to years before the onset of Acquired Immunodeficiency Syndrome (AIDS) include: lack of energy, weight loss, frequent fevers and sweats, persistent or frequent yeast infections (oral or vaginal), persistent skin rashes or flaky skin, pelvic inflammatory disease that does not respond to treatment (in women), and short-term memory loss.
- In people with AIDS, opportunistic infections are often severe and sometimes fatal because the immune system is so ravaged by HIV infection that the body cannot fight off certain bacteria, viruses, fungi, parasites, and other microbes. Symptoms of opportunistic infections common in people with AIDS include: coughing and shortness of breath, seizures and lack of coordination, difficult or painful swallowing, mental symptoms such as confusion and forgetfulness, severe diarrhea, fever, vision loss, nausea, abdominal cramps, and vomiting, weight loss and extreme fatigue, and severe headaches.
Causative Agent
The human immunodeficiency virus (HIV) is a retrovirus. Most cases are HIV type 1 (HIV-1); HIV-2, a related virus that is extremely uncommon in the United States is more common in West Africa. Three groups of HIV-1 have been identified – M, N, and O. Group M is the most prevalent and is subdivided into seven subtypes. There may be differences between HIV-1 subtypes in rates of disease progression and possibly in transmissibility.

Differential Diagnosis
The most common symptoms associated with acute infection occur 2-6 weeks after exposure and are influenza-like and include fever, malaise, lymphadenopathy and sore throat. A rash may also develop, and the differential diagnosis includes infectious mononucleosis, pityriasis rosea, secondary syphilis, drug reaction, or toxic erythema due to another infectious cause.

Laboratory Identification
Laboratories should conduct initial testing for HIV with an FDA-approved antigen/antibody combination immunoassay that detects HIV-1 and HIV-2 antibodies and HIV-1 p24 antigen to screen for established infection with HIV-1 or HIV-2 and for acute HIV-1 infection. No further testing is required for specimens that are nonreactive on the initial immunoassay.

Specimens with a reactive antigen/antibody combination immunoassay result (or repeatedly reactive, if repeat testing is recommended by the manufacturer or required by regulatory authorities) should be tested with an FDA-approved antibody immunoassay that differentiates HIV-1 antibodies from HIV-2 antibodies. Reactive results on the initial antigen/antibody combination immunoassay and the HIV-1/HIV-2 antibody differentiation immunoassay should be interpreted as positive for HIV-1 antibodies, HIV-2 antibodies, or HIV antibodies, undifferentiated.

Specimens that are reactive on the initial antigen/antibody combination immunoassay and nonreactive or indeterminate on the HIV-1/HIV-2 antibody differentiation immunoassay should be tested with an FDA-approved HIV-1 nucleic acid test (NAT).

- A reactive HIV-1 NAT result and nonreactive HIV-1/HIV-2 antibody differentiation immunoassay result indicates laboratory evidence for acute HIV-1 infection.
- A reactive HIV-1 NAT result and indeterminate HIV-1/HIV-2 antibody differentiation immunoassay result indicates the presence of HIV-1 infection confirmed by HIV-1 NAT.
- A negative HIV-1 NAT result and nonreactive or indeterminate HIV-1/HIV-2 antibody differentiation immunoassay result indicates a false-positive result on the initial immunoassay.

Laboratories should use this same testing algorithm, beginning with an antigen/antibody combination immunoassay, with serum or plasma specimens submitted for testing after a reactive (preliminary positive) result from any rapid HIV test.
Primary care physicians are encouraged to participate actively in the care of HIV-infected patients in consultation with specialists who have HIV expertise. Guidelines for the treatment of HIV/AIDS are updated on a regular basis. For updated treatment guidelines, please visit www.cdc.gov/hiv/topics/treatment or www.hrsa.gov/publications/january2007.

Case Fatality
The proportion of HIV-infected persons who, in the absence of anti-HIV treatment, will ultimately develop AIDS has been estimated at over 90%. In the absence of effective treatment, the AIDS case-fatality rate is high: survival time in many developing countries is often under 1 year; in industrialized countries 80-90% of untreated patients used to die within 3-5 years after diagnosis. However, recent advancements in treatment and medical care have significantly postponed the development of AIDS-defining conditions and deaths. In the United States, an estimated 13,712 people with an AIDS diagnosis died in 2012, and approximately 658,507 people with an AIDS diagnosis have died overall.

Reservoir
Humans are the only natural host. An infected individual may be asymptomatic for several years while continuing to be infectious.
Transmission
Person-to-person transmission through unprotected sexual contact (penile, vaginal or anal intercourse); use of HIV-contaminated needles or syringes (primarily shared by intravenous drug users); vertical transmission from mother to infant during pregnancy, delivery, or breastfeeding; or less commonly (and now very rarely in countries where blood is screened for evidence of HIV infection), through transfusions of infected blood or blood clotting factors.

Susceptibility
Susceptibility is unknown, but presumed to be general: race, gender, and pregnancy do not appear to affect susceptibility to HIV infection or AIDS. The presence of other sexually transmitted infections, especially if ulcerative, increases susceptibility. Recent data indicates that circumcision of males is protective against infection.

Incubation Period
The incubation period for HIV is variable. The presence of antibodies is typically detected within 30 days after infection occurs. Among patients enrolled in large epidemiologic studies, the time from infection with HIV to the development of AIDS-related symptoms has ranged from less than 1 year to 15 years or longer. Factors such as the absence of antiretroviral therapy, co-infection, and general health of the individual affect this time frame. However, researchers have observed a wide variation in disease progression. Approximately 10% of HIV-infected people in these studies have progressed to AIDS within the first 2–3 years following infection, while up to 5% of individuals in studies have stable CD4+ T cell counts and no symptoms even after 12 or more years.

Period of Communicability
The period of communicability is not known precisely. It begins early after onset of HIV infection and presumably extends throughout life.

Infectiousness with HIV may be variable; anyone with a positive test for HIV antibody and/or detectable HIV in the blood should be considered infectious. The degree of correlation between quantity of circulating virus and infectiousness is not clearly established, although lower viral loads appear to reduce the risk of transmission. HIV is a chronic infection and persons with HIV remain infectious indefinitely.

Epidemiology
The number of people newly infected with HIV has fallen to the lowest level in over two decades, according to the latest available data – a testament to the impact of the world’s efforts to vanquish the global HIV epidemic. The estimated 2.1 million [1.9–2.4 million] people globally who acquired HIV for the first time in 2013 were 15% fewer than the 2.5 million [2.3–2.7 million] who acquired the virus in 2009, the baseline for the WHO Global Health Sector Strategy on HIV/AIDS. In addition, they were 38% fewer than the estimated 3.4 million [3.3–3.6 million] people who acquired HIV in 2001. (WHO, Global Update on the Health Sector Response to HIV, 2014).
CDC estimates that 1,201,100 persons aged 13 years and older are living with HIV infection in the U.S., including 168,300 (14%) who are unaware of their infection. Over the past decade, the number of people living with HIV has increased, while the annual number of new HIV infections has remained relatively stable. Still, the pace of new infections continues at far too high a level—particularly among certain groups.

HIV Incidence (new infections): The estimated incidence of HIV has remained stable overall in recent years, at about 50,000 new HIV infections per year. Within the overall estimates, however, some groups are affected more than others. MSM continue to bear the greatest burden of HIV infection, and among races/ethnicities, African Americans continue to be disproportionately affected.

HIV Diagnoses (new diagnoses, regardless of when infection occurred or stage of disease at diagnosis): In 2013, an estimated 47,352 people were diagnosed with HIV infection in the United States. In that same year, an estimated 26,688 people were diagnosed with AIDS. Overall, an estimated 1,194,039 people in the United States have been diagnosed with AIDS since the beginning of the epidemic.

In Utah, there were 2,731 HIV-infected individuals assumed to be alive and residing in Utah as of December 31, 2014. Males, accounting for 86% of the infections, continue to be primarily affected by HIV in Utah. The majority (56%) of individuals with HIV are men who have sex with men (MSM) followed by MSM/IDU (injection drug use) at 14% and IDU at 10%. Individuals reporting heterosexual risk account for 9%, however, roughly 11% of individuals with HIV reported some other historic risk or did not report a risk. While the number of people living in Utah with HIV increases each year, the rate of newly diagnosed infections has decreased over the last decade from 5.0 infections per 100,000 in 2005 to 4.0 per 100,000 in 2014.
PUBLIC HEALTH CONTROL MEASURES

Public Health Responsibility
- Investigate all suspect cases of disease and fill out and submit appropriate disease investigation forms.
- Provide education to the general public, clinicians, and first responders regarding disease transmission and prevention.
- Identify clusters or outbreaks of this disease.
- Identify sources of exposure and stop further transmission.

Prevention
HIV/AIDS prevention programs can be effective only with full community and political commitment to change and/or reduce high HIV-risk behaviors.
- Public and school health education should stress that having multiple and especially concurrent and/or overlapping sexual partners or sharing drug paraphernalia all increase the risk of HIV infection.
- The specific needs of minorities; persons with different primary languages and those with visual, hearing or other impairments must be addressed.
- Students should be taught to avoid or reduce risky behavior.
- Programs for school-age youth should address the needs and developmental levels of both students and those who do not attend school.
- The only absolute way to avoid infection through sex is to abstain from sexual intercourse or to engage in mutually monogamous sexual intercourse only with someone known to be uninfected.
- Latex condoms must be used correctly every time a person has vaginal, anal, or oral sex. Only water-based lubricants should be used with male condoms.
- Expansion of facilities for treating drug users reduces HIV transmission. Programs that instruct needle users in decontamination methods and needle exchange have been shown to be effective.
- HIV testing and counseling is an important intervention raising awareness of HIV status, promoting behavioral change and diagnosing HIV infection.
- Pregnant women should be counseled about HIV early in pregnancy and where culturally and socially appropriate, encourage a HIV test as a routine part of standard antenatal care.
- Care must be taken in handling, using and disposing of needles or other sharp instruments.
- Healthcare workers should wear latex gloves, eye protection and other personal protective equipment in order to avoid contact with blood or other bodily fluids.
- The risk of transmission from an HIV-infected pregnant woman to her baby is significantly reduced if the mother takes zidovudine, or other anti-retroviral agents during pregnancy, labor, and delivery, and if her baby is treated for the first six weeks of life.
Chemoprophylaxis

All sexual partners and needle-sharing partners should be evaluated and tested for HIV as well as infants born to mothers with HIV.

Pre-exposure prophylaxis, or PrEP, is a way for people who do not have HIV, but who are at substantial risk of getting it, to prevent HIV infection by taking a pill every day. The pill (brand name Truvada) contains two medicines (tenofovir and emtricitabine) that are used in combination with other medicines to treat HIV. When someone is exposed to HIV through sex or injection drug use, these medicines can work to keep the virus from establishing a permanent infection.

When taken consistently, PrEP has been shown to reduce the risk of HIV infection in people who are at high risk by up to 92%. PrEP is much less effective if it is not taken consistently.

PrEP is a powerful HIV prevention tool and can be combined with condoms and other prevention methods to provide even greater protection than when used alone. But people who use PrEP must commit to taking the drug every day and seeing their healthcare provider for follow-up every 3 months. More information can be found here: http://www.cdc.gov/hiv/prevention/research/prep/

Vaccine

None.

Isolation and Quarantine Requirements

**Isolation:** Avoid unprotected sexual contact or sharing syringes for intravenous drug injections.

**Hospital:** Standard body substance precautions.

**Quarantine:** Not applicable.
CASE INVESTIGATION

Reporting

HIV infections (including AIDS) are required by Utah law to be reported to public health within three working days after identification. R386-702-4 (b). Reporting. Reporting of HIV-related test results and specific patient information are also required. R386-702-9. Special Measures for the Control of HIV/AIDS.

Criteria to determine whether a case should be reported to public health authorities.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Potential HIV Infection</th>
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| Laboratory Evidence
| Positive HIV antibody test                                               | S                       |
| Positive HIV antigen test                                                | S                       |
| Positive HIV combination antigen/antibody test                           | S                       |
| Positive qualitative HIV nucleic acid test                               | S                       |
| Quantitative HIV nucleic acid test (viral load), any result*             | S                       |
| Viral isolation (culture)                                                | S                       |
| HIV genotype test result                                                 | S                       |
| Clinical Evidence
| HIV diagnosis documented in medical record or death certificate           | S                       |
| Epidemiological Evidence
| Child born to HIV-infected mother, documented in medical                 | S                       |

NOTES: S = This criterion alone is sufficient to report a potential case.

*Even undetectable viral loads should be reported unless the patient is known not to have HIV infection, because they could represent potential cases or may help to monitor whether known cases are in care.

Case Definitions for Case Classification

One-Rapid HIV Testing Case Definition (2016)
The following description and algorithm describes the test method the Prevention, Treatment and Care Program (PTCP) of the Utah Department of Health recommends for its grantees, local health departments and other agencies, as a guide on how to use HIV rapid testing technology for the early detection of HIV infection to prevent further transmission of the disease.

Additionally, this document describes how to appropriately link those individuals with preliminary positive results to medical care, partner services and HIV Prevention Services.

The PTCP recommends that Alere Determine™ HIV-1/2 Ag/Ab Combo be used as a point-of-care immunoassay for the simultaneous detection HIV-1 p24 antigen (Ag) and antibodies (Ab) to HIV-1 and HIV-2 in human serum, plasma, capillary (fingerstick) whole blood or venipuncture (venous) whole blood.
Alere Determine™ HIV-1/2 Ag/Ab Combo is not intended for newborn screening or for use with cord blood specimens or specimens from individuals less than 12 years of age.

Alere Determine™ HIV-1/2 Ag/Ab Combo is not intended for use in screening blood, plasma, cell, or tissue donors.

The recommended test device and algorithm have several advantages over previous recommendations, including:

- CLIA-waived for fingerstick whole blood.
- It is a 4th generation rapid point-of-care that detects both HIV-1/2 antibodies and free HIV-p24 antigen on a single test strip.
- Detects HIV earlier than 3rd generation antibody–only tests.
- Allows for speedy and seamless linkage to care.
- Reduces referral burden for clients and counselors.

A reactive test result using Alere Determine™ HIV-1/2 Ag/Ab Combo suggests the presence of HIV-1 p24 antigen and/or antibodies to HIV-1 and/or HIV-2 in the sample. The reactive result is interpreted as PRELIMINARY POSITIVE for HIV-1 p24 antigen and/or antibodies to HIV-1 and/or HIV-2. Alere Determine™ HIV-1/2 Ag/Ab Combo is intended as an aid in the diagnosis of infection with HIV-1/2 and its reactive results must be confirmed by a medical provider with an FDA-approved antigen/antibody combination (4th generation) immunoassay that detects HIV-1 and HIV-2 antibodies and HIV-1 p24 antigen to screen for established infection with HIV-1 or HIV-2 and for acute HIV-1 infection. AIDS-related conditions are clinical syndromes, and their diagnosis can only be established clinically.

Medical providers should refer to the CDC Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens to confirm the preliminary positive results of the Alere Determine™ HIV-1/2 Ag/Ab Combo test. Please see the Updated Recommendations for Laboratory Testing for the Diagnosis of HIV Infection at: [http://www.cdc.gov/hiv/pdf/hivtestingalgorithmrecommendation-final.pdf](http://www.cdc.gov/hiv/pdf/hivtestingalgorithmrecommendation-final.pdf).

Figure 1: Recommended Rapid HIV Testing Algorithm for serum, plasma, and capillary (fingerstick) whole blood or venipuncture (venous) whole blood.

Determine HIV-1/2 Ag/Ab Combo

(+)

Antibody (+)*
HIV-1 and/or HIV-2 Ab (+)
HIV-1 p24Ag (-)
p24Ag (-)

Antigen (+)*
HIV-1 or HIV-2 ab (-)
HIV-1 p24Ag (+)

Antibody & Antigen (+)*
HIV-1 or HIV-2 ab (-)
HIV-1 p24 Ag (+)

Nonreactive
HIV-1

Preliminary Positive**

Active Referrals

1) Medical Care
   Client’s Medical Provider
   Or
   University of Utah

2) Partner Services
   Local Health Department

3) HIV Prevention Services
   - STD/HCV Testing
   - Condom Distribution
   - CRCS

(+) Indicates reactive test result
(-) Indicates non-reactive test result
STD means Sexually Transmitted Disease
HCV means Hepatitis C Virus
CRCS means Comprehensive Risk Counseling & Services
*Result is reportable
**Rapid reactive results must be confirmed
Surveillance Case Definition (2013)

Description of criteria to determine how a case should be classified
The case definition below builds on CDC’s MMWR article entitled “Revised Case Definitions for HIV Infection Among Adults, Adolescents, and Children <18 months and for HIV Infection and AIDS Among Children Aged 18 Months to <13 Years ---United States, 2008” (MMWR 2008;57 (No. RR10). It incorporates revisions recommended to address the issues described in Section II-A through II-I above, and combines the confirmation and staging criteria for different age groups into a single definition. The definition is intended for public health surveillance and prevention, not as a guide for clinical diagnosis or patient management. The definition applies to all HIV variants (e.g., HIV-1 or HIV-2). Criteria for a confirmed case of HIV infection may not be met solely by the diagnosis of a Stage-3-defining opportunistic illness (Appendix).

Criteria for a Confirmed Case
Criteria for a confirmed case can be met by either laboratory evidence or clinical evidence, as described below. Laboratory evidence is preferred over clinical evidence.

Persons Aged ≥18 Months

AND

Children Aged <18 Months whose Mothers were Not Infected

Laboratory Evidence
Laboratory criteria require that:
1. a test result specified as positive (reactive or detectable), AND
2. the date of specimen collection (at least the year), AND
3. the type of test.

Laboratory criteria require reporting of the date of the specimen collection for positive test results in multi-test algorithms or stand-alone virologic tests and enough information about the tests to determine that they meet any of the following criteria:

- A multi-test algorithm consisting of:
  - a positive result from an initial HIV antibody or combination antigen/antibody test, AND
  - an accompanying or subsequent positive result from a supplemental HIV test different from the initial test.

The initial HIV antibody or antigen/antibody test and the supplemental HIV test that is used to verify the result from the initial test can be of any type used as an aid to diagnose HIV infection. For surveillance purposes, supplemental tests can include some not approved by the Food and Drug Administration (FDA) for diagnosis (e.g., HIV-1 viral load test, HIV-2 Western blot/immunoblot antibody test, and HIV-2 NAT). However, the initial and supplemental tests must be “orthogonal” (e.g., have different antigenic constituents or use different principles) to minimize the possibility of concurrent nonspecific reactivity. Because the antigenic constituents and test
principles are proprietary information that might not be publicly available for some tests, tests will be assumed to be orthogonal if they are of different types. For example:

- One test is a combination antigen/antibody test and the other an antibody-only test.
- One test is an antibody test and the other a NAT.
- One test is a rapid immunoassay (a single-use analytical device that produces results in <30 minutes) and the other a conventional immunoassay.
- One test is able to differentiate between HIV-1 and HIV-2 antibodies and the other is not.

Tests also will be assumed to be orthogonal if they are of the same type (e.g., two conventional immunoassays) but made by different manufacturers. The type of HIV antibody test that verifies the initial test might be one formerly used only as an initial test (e.g., conventional or rapid immunoassay, HIV-1/2 type-differentiating immunoassay), or it might be one traditionally used as a supplemental test for confirmation (e.g., Western blot, immunofluorescence assay).

- A positive result of a multi-test HIV antibody algorithm from which only the final result was reported, including a single positive result on a test used only as a supplemental test (e.g., HIV Western blot, immunofluorescence assay) or on a test that might be used as either an initial test or a supplemental test (e.g., HIV-1/2 type-differentiating rapid antibody immunoassay) when it might reasonably be assumed to have been used as a supplemental test (e.g., because the algorithm customarily used by the reporting laboratory is known).

- A positive result or report of a detectable quantity (i.e., within the established limits of the laboratory test) from any of the following HIV virologic (e.g., non-antibody) tests:
  - Qualitative HIV NAT (DNA or RNA)
  - Quantitative HIV NAT (viral load assay)
  - HIV-1 p24 antigen test
  - HIV isolation (viral culture)
  - HIV nucleotide sequence (genotype)

**Clinical (Non-Laboratory) Evidence**

Clinical criteria for a confirmed case (e.g., a “physician-documented” diagnosis for which the surveillance staff have not found sufficient laboratory evidence described above) are met by the combination of:

- A note in a medical record by a physician or other qualified medical-care provider that states that the patient has HIV infection, AND

- One or both of the following:
  - The laboratory criteria for a case were met based on tests done after the physician’s note was written (validating the note retrospectively),
  - Presumptive evidence of HIV infection (e.g., receipt of HIV antiretroviral therapy or prophylaxis for an opportunistic infection), an otherwise unexplained low CD4+ T-lymphocyte count, or an otherwise unexplained diagnosis of an opportunistic illness (Appendix).
Children Aged <18 Months Born to Mothers Who Have an Unknown Infection Status or Were Known to be Infected

Laboratory Evidence
A child aged <18 months is categorized for surveillance purposes as HIV-infected if all of the following criteria are met:

- Positive results on at least one specimen (not including cord blood) from any of following HIV virologic tests:
  - HIV-1 NAT (DNA or RNA)
  - HIV-1 p24 antigen test, including neutralization assay for a child aged >1 month
  - HIV isolation (viral culture)
  - HIV nucleotide sequence (genotype)
- The test date (at least the month and year) is known
- One or both of the following:
  - Confirmation of the first positive result by another positive result on one of the above virologic tests from a specimen obtained on a different date,
  - No subsequent negative result on an HIV antibody test, and no subsequent negative result on an HIV NAT before age 18 months.

Clinical Evidence
- The same criteria as in the section above (Persons Aged ≥18 Months and Children Aged <18 Months whose Mothers were Not Infected) OR
- All three of the following alternative criteria:
  1. Evidence of perinatal exposure to HIV infection before age 18 months
     a. A mother with documented HIV infection OR
     b. A confirmed positive test for HIV antibody (e.g., a positive initial antibody test or antigen/antibody test, confirmed by a supplemental antibody test) and a mother whose infection status is unknown or undocumented.
  2. Diagnosis of an opportunistic illness indicative of stage 3 (Appendix).
  3. No subsequent negative result on an HIV antibody test.

Definition for Date of Diagnosis of a Confirmed Case for all Ages

Laboratory Criteria
If the diagnosis is based on laboratory evidence, the diagnosis date is defined as the earliest date on which the specimen was obtained for a positive HIV test result.

Clinical Criteria
If the diagnosis was based on clinical evidence (“physician-documented”) rather than laboratory evidence, the diagnosis date is defined as the date (at least the year) of diagnosis reported in the content of the medical record or physician’s note. If the diagnosis date was not reported in the note, the date when the note was written can be used as a proxy. However, both of these dates
should be reported, as well as the date of the diagnosis stated by the patient, if it differs from the other two dates.

Criteria for Classifying the HIV Type as HIV-2

All HIV infections in the United States should be assumed to be type 1 (HIV-1) unless laboratory test results are sufficient to classify the infection as type 2 (HIV-2), dual HIV-1 and HIV-2 infections, or undifferentiated HIV infection, as described below. Clinical or epidemiologic evidence might lead to laboratory testing for HIV-2 but is insufficient for classifying the HIV type as HIV-2.

Persons Aged ≥18 Months

AND

Children Aged <18 Months Not Perinatally Exposed

HIV-2 infection

For HIV-2 infection, one or more of the following laboratory criteria are necessary and sufficient:
- FDA-approved HIV1/2 type-differentiating antibody test result positive for HIV-2 and negative for HIV-1.
- Positive HIV-2 Western blot (WB) (or immunoblot or line assay) result and negative or indeterminate HIV-1 WB result.
- Positive qualitative HIV-2 NAT result.
- Detectable quantitative HIV-2 NAT (viral load).
- Laboratory results interpreted as consistent with HIV-2 infection by a laboratory expert experienced in differentiating HIV-2 from HIV-1 if laboratory evidence for HIV-2 is ambiguous.

Dual Infection with HIV-1 and HIV-2

The HIV type is classified as “dual” infection (both HIV-1 and HIV-2) if both an HIV-1 NAT and an HIV-2 NAT are positive.

Undifferentiated HIV Type

The HIV type is classified as “undifferentiated” if there is no positive or detectable result from an HIV-1 NAT and a laboratory expert cannot resolve ambiguous evidence for HIV-2, such as:
- HIV-2 WB is positive and HIV-1 WB is HIV positive, OR
- HIV-1/HIV-2 type-differentiating antibody test result interpretation is “undifferentiated” (positive for both HIV-1 and HIV-2).

Difficulty of Diagnosing HIV-2 Infection in Children Aged <18 Months Born to Mothers Known to be HIV-infected or whose HIV Infection Status is Unknown

In perinatally-exposed children aged <18 months, antibody tests are not used to diagnose HIV infection because of the expectation that they might be false indicators of infection in the child
due to passive transfer of maternal antibody. The HIV-1 NAT routinely used to diagnose HIV-1 infection in children of this age is likely to be negative in an HIV-2-infected child because it is insensitive to HIV-2. A positive HIV-2 NAT result would satisfy the criteria for a case. Otherwise, the diagnosis of HIV-2 infection in a child will need to wait until the child is aged 18 months, when it can be based on antibody test results.

Criteria for Uninfected and Indeterminate HIV Infection Status of Perinatally Exposed Children Aged <18 Months

Uninfected
A child aged <18 months who was born to an HIV-infected mother or had a positive HIV antibody test result is classified for surveillance purposes as not infected with HIV if all three of the following criteria are met:

1) Laboratory criteria for HIV infection are not met, AND
2) No diagnosis of a stage-3-defining opportunistic illness (Appendix) attributed to HIV infection, AND
3) Either laboratory or clinical evidence of absence of HIV infection as described below.

Laboratory Evidence
Definitively Uninfected
- No positive HIV NAT (RNA or DNA) and at least one of the following criteria:
  o At least two negative HIV NATs from specimens obtained on different dates, both of which were at age ≥1 month and one of which was at age ≥4 months.
  o At least two negative HIV antibody tests from specimens obtained on different dates at age ≥6 months.

Presumptively Uninfected
- Criteria for definitively uninfected with HIV are not met and at least one of the following four laboratory criteria are met:
  o At least two negative NATs from specimens obtained on different dates, both of which were at age ≥2 weeks and one of which was at age ≥4 weeks.
  o One negative NAT (RNA or DNA) from a specimen obtained at age ≥8 weeks.
  o One negative HIV antibody test from a specimen obtained at age ≥6 months.
  o If criteria for HIV infection had initially been met by one positive HIV NAT test then it must have been followed by at least two negative test results from specimens obtained on different dates, one of which is:
    ▪ A NAT test from a specimen obtained at age ≥8 weeks, OR
    ▪ An HIV antibody test from a specimen obtained at age ≥6 months and no subsequent positive NAT.

Clinical Evidence
A note in a medical record by a physician or other qualified medical-care provider states that the patient is not infected with HIV.
Indeterminate HIV Infection Status
A child aged <18 months born to an HIV-infected mother is categorized as having perinatal exposure with an indeterminate HIV infection status if neither the criteria for being HIV-infected nor the criteria for being uninfected are met.

Criteria for Classifying the Stage of HIV Infection
The stages of HIV infection defined in this document are for surveillance staging of disease and might not be appropriate for patient care, clinical research, or other purposes.

A confirmed case that meets the criteria for diagnosis of HIV infection can be classified in one of five HIV infection stages (0, 1, 2, 3, or unknown):

- **Stage 0** indicates early HIV infection, inferred from a negative or indeterminate HIV test result within 6 months of a confirmed positive result, and these criteria supersede and are independent of the criteria used for later stages.
- Stages 1, 2, and 3 are based on the CD4+ T-lymphocyte count. If the CD4+ count is missing or unknown, the CD4+ T-lymphocyte percentage of total lymphocytes can be used to assign the stage.
- Cases with no information on CD4+ T-lymphocyte count or percentage are classified as stage unknown.

If a Stage-3-defining opportunistic illness has been diagnosed, then the stage is 3 regardless of CD4 T-lymphocyte test results, unless the criteria described below for Stage 0 are met. CD4+ T-lymphocyte counts or percentages at the time of diagnosis allow classification of cases by stage at diagnosis. Subsequent CD4+ T-lymphocyte counts or percentages help monitor disease progression and whether the person is receiving on-going care.

The stage characterizes the status of HIV disease at a particular point in time. Of primary interest to surveillance is the stage at initial diagnosis, but the stage can change in either direction after diagnosis and might be defined with reference to dates of interest such as the most advanced stage recorded through a particular date. The stages are defined as follows:

**Stage 0**
The criteria for Stage 0 consist of a sequence of discordant test results indicative of early HIV infection in which a negative or indeterminate result was within 180 days of a positive result. The criteria for Stage 0 supersede and are independent of the criteria used for other stages.

Stage 0 can be established either:

- **Based on testing history (previous negative/indeterminate test results):**
  - a negative or indeterminate HIV test (antibody, combination antigen/antibody, or nucleic acid test) result within 180 days before the first confirmed positive HIV test result of any type. The first positive test result could be any time before the positive supplemental test result that confirms it, **OR**

- **Based on a testing algorithm:**
  - a sequence of tests performed as part of a laboratory testing algorithm that demonstrate the presence of HIV-specific viral markers such as p24 antigen or
nucleic acid (RNA or DNA) 0-180 days before or after an antibody test that had a negative or indeterminate result.

- Examples of algorithms that would fulfill this requirement include:
  - A positive initial HIV immunoassay result (e.g., antigen/antibody or antibody only) followed by a negative or indeterminate supplemental antibody test result (e.g., HIV-1/HIV-2 antibody differentiation assay or Western blot) and a positive NAT result. All three tests are usually performed as part of the same testing algorithm but time might elapse between tests if additional specimens must be obtained for definitive supplemental testing.
  - A negative initial HIV immunoassay result followed by a positive NAT result that might have been done to evaluate the presence of acute HIV infection.

Exceptions

A confirmed case of HIV infection is not in Stage 0 if any of the following are true:

- The negative or indeterminate HIV test used as the criterion for it being a recent infection was preceded >60 days by evidence of HIV infection, such as a confirmed positive HIV test result, a clinical (physician-documented) diagnosis of HIV infection for which the surveillance staff have not found sufficient laboratory evidence, a CD4+ T-lymphocyte test result indicative of Stage 3, or an opportunistic illness indicative of Stage 3 (Appendix).
- The case definition for HIV-2 infection is met. (An HIV-1 antibody test may be nonreactive or indeterminate due to its inability to detect HIV-2 antibodies, and an HIV-1 NAT may be negative due to its inability to detect HIV-2 nucleic acid, rather than due to absence or earliness of HIV-2 infection.)

Classifying a case as Stage 0 depends on documenting negative HIV antibody test results in the specific situations described above. Negative test results from testing algorithms that have concluded that the person is not infected need not be reported to HIV surveillance programs.

Progression of Stage after Initial Diagnosis in Stage 0

Although the stage at diagnosis does not change, if >180 days have elapsed after the stage was 0 at diagnosis, the stage at the later date is classified as 1, 2, 3, or unknown, depending on CD4+ T-lymphocyte test results or whether an opportunistic illness had been diagnosed >180 days after HIV infection diagnosis.

Stages 1, 2, 3, and Unknown

If the criteria for stage 0 are not met, the stage is classified as 1, 2, 3, or unknown, depending on CD4+ T-lymphocyte test results or whether an opportunistic illness was diagnosed.

Stage 1

- Criteria for Stage 0 not met
- No Stage-3-defining opportunistic illness (Appendix)
- CD4+ T-lymphocyte test results:
Stage 2
- Criteria for Stage 0 not met
- No Stage-3-defining opportunistic illness (Appendix)
- CD4+ T-lymphocyte test results:
  - CD4 count of 200--499 cells/μL OR
  - If CD4 count is unknown, a CD4 percentage of 14%--26.

Stage 3
- Criteria for Stage 0 not met
- One or both of the following:
  - Stage-3-defining opportunistic illness (Appendix), OR
  - CD4+ T-lymphocyte test results:
    - CD4 count of <200 cells/μL OR
    - If CD4 count is unknown, a CD4 percentage of <14%

Whatever method was used to make the diagnosis of any of the opportunistic illnesses will be accepted as sufficient (eliminating the previous requirement for some of them to be “definitively” diagnosed). These changes will be applied only to cases reported after implementation of this revision, not retroactively to previously reported cases.

Stage Unknown
- Criteria for Stage 0 not met.
- No information available on CD4+ T-lymphocyte count or percentage.
- No information available on Stage-3-defining opportunistic illness (Appendix).

Children Aged <13 Years
Infection among children aged 6-12 years is staged with the same criteria as infection among adults and adolescents, including opportunistic illnesses indicative of Stage 3 (Appendix) that formerly applied only to adults and adolescents (e.g., pulmonary tuberculosis, recurrent pneumonia, and cervical cancer). Multiple or recurrent bacterial infections (other than recurrent Salmonella septicemia), which formerly applied only to children aged <13 years, now apply only to children aged <6 years. Lymphoid interstitial pneumonia is no longer classified as indicative of Stage 3 in children because it is associated with moderate rather than severe immunodeficiency. The diagnosis of any of the opportunistic illnesses, irrespective of diagnostic method used, will meet the criteria for staging, thereby eliminating the requirement in the 2008 case definition for some of them to be “definitively” diagnosed.

In addition, the criteria for Stage 0 in adults/adolescents may also be applied to children if they are known not to have acquired HIV infection perinatally from their mother. For those aged <18 months, this requires previously meeting the criteria for definitive absence of HIV infection. If the criteria for Stage 0 are not met or >180 days have elapsed after diagnosis in Stage 0, the stage
at the later date is classified as either 3 or “U” (undefined), depending on whether an opportunistic illness has been diagnosed (Appendix).

The criteria for staging in children differ from those in adults/adolescents. Stage 3 in children is based on the diagnosis of opportunistic infections, and not on CD4+ T-lymphocyte test results. Stages 1 and 2 in children are undefined because a consensus has not yet been reached on which CD4 test results should define the boundaries between Stages 1, 2, and 3 in children.

Classification Tables

**Table 1. Criteria for defining a confirmed case of HIV infection.**

Note: The criteria in the following table are intended to reflect the criteria for a confirmed case in the narrative description in *Criteria for a Confirmed Case* section above.

<table>
<thead>
<tr>
<th>Criteria for a confirmed case</th>
<th>Age at Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;18 months</td>
</tr>
<tr>
<td></td>
<td>Definitive</td>
</tr>
<tr>
<td><strong>Laboratory Evidence</strong></td>
<td></td>
</tr>
<tr>
<td>HIV test date (at least the year)</td>
<td>N</td>
</tr>
<tr>
<td>Positive result on initial HIV antibody test in algorithm</td>
<td>N</td>
</tr>
<tr>
<td>Positive result on initial HIV combination antigen/antibody test wherein which of the two components (antibody or antigen) was positive cannot be differentiated</td>
<td>N</td>
</tr>
<tr>
<td>Positive result on supplemental HIV antibody test that verifies result of initial test in algorithm</td>
<td>N</td>
</tr>
<tr>
<td>Positive result on HIV antibody test used only as supplemental test (e.g., Western blot, immunofluorescence assay) or on conclusion of antibody test algorithm</td>
<td></td>
</tr>
<tr>
<td>Positive result on HIV p24 antigen test</td>
<td>O</td>
</tr>
<tr>
<td>Positive result on HIV nucleic acid test (DNA or RNA)</td>
<td>O</td>
</tr>
<tr>
<td>Positive result on HIV isolation (viral culture)</td>
<td>O</td>
</tr>
<tr>
<td>HIV genotype nucleotide sequence</td>
<td>O</td>
</tr>
<tr>
<td>At least 2 such results from separate specimens</td>
<td>O</td>
</tr>
<tr>
<td>Results from only one specimen</td>
<td></td>
</tr>
<tr>
<td>No subsequent negative results on HIV virologic or HIV antibody tests</td>
<td></td>
</tr>
</tbody>
</table>
### Clinical Evidence

<table>
<thead>
<tr>
<th>Evidence Type</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician’s note stating patient has HIV infection</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Retrospective validation of note by subsequent laboratory evidence as described above</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Circumstantial evidence of HIV infection (e.g., antiretroviral therapy, low CD4 count, diagnosis of opportunistic illness)</td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

- N = All "N" criteria in the same column are Necessary to classify a case as confirmed.
- O = At least one of the “O” (Optional) criteria in each category in the same column—in conjunction with the “N” criterion in the same column—is required to classify a case as confirmed.

**“Definitive” diagnosis requires positive results from two separate specimens (excluding cord blood) for one or more of the tests marked by an “N.” “Presumptive” diagnosis requires a positive result from only one specimen for the test.**

### Table 2. Criteria for classifying the HIV type as HIV-2.

**Note:** The laboratory criteria in the following table are intended to reflect the criteria in the narrative description in **Criteria for Classifying the HIV Type as HIV-2** section above. In children aged <18 months, a confirmed diagnosis of HIV infection must be established (Table 1) before the following criteria are applied to determine the HIV type.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV test date (at least the year)</td>
<td>N, N</td>
</tr>
<tr>
<td>Positive result on initial/screening HIV antibody test that can detect HIV-2 antibody (e.g., HIV-1/2 immunoassay)</td>
<td>N</td>
</tr>
<tr>
<td>Positive result on initial HIV combination antigen/antibody test that can detect HIV-2 antibody</td>
<td>N</td>
</tr>
<tr>
<td>Positive result for HIV-2 AND negative result for HIV-1 on FDA-approved HIV-1/2 type-differentiating antibody test</td>
<td>O, O</td>
</tr>
<tr>
<td>Positive result on HIV-2 Western blot (or immunoblot or line assay) antibody test AND negative result on HIV-1 Western blot antibody test</td>
<td>O, O</td>
</tr>
<tr>
<td>Positive result on HIV-2 nucleic acid (DNA or RNA) test</td>
<td>O, O</td>
</tr>
<tr>
<td>Diagnosis of HIV-2 infection by CDC-recognized expert in interpretation of Western blots if HIV-2 WB is positive and HIV-1 WB is positive or indeterminate</td>
<td>O, O</td>
</tr>
</tbody>
</table>

**NOTES:**

- N = All "N" criteria in the same column are Necessary to classify the HIV type as HIV-2.
- O = At least one of these “O” (Optional) criteria in each category in the same column—in conjunction with the “N” criteria in the same column—is required to classify the HIV type as HIV-2.
Table 3. Criteria for classifications of HIV infection status other than definitively or presumptively infected in perinatally exposed children aged <18 months.

Note: The criteria in the following table are intended to reflect the criteria in the narrative description in **Criteria for other Classifications of the HIV Infection Status of Perinatally Exposed Children Aged <18 Months** section above.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory criteria for definitive or presumptive HIV infection not met</td>
<td>N N N N N</td>
</tr>
<tr>
<td>No diagnosis of Stage-3-defining opportunistic illness that could not be attributed to a cause of immunosuppression other than HIV</td>
<td>N N</td>
</tr>
<tr>
<td>At least two negative HIV DNA or RNA tests from separate specimens, both of which were obtained at age &gt;1 month and one of which was obtained at age &gt;4 months</td>
<td>O</td>
</tr>
<tr>
<td>At least two negative HIV antibody tests from separate specimens obtained at age &gt;6 months</td>
<td>O</td>
</tr>
<tr>
<td>Criteria for definitively uninfected with HIV not met</td>
<td>N</td>
</tr>
<tr>
<td>At least two negative nucleic acid (RNA or DNA) tests (NATs), from separate specimens, both obtained at age &gt;2 weeks and one obtained at age &gt;4 weeks</td>
<td>O</td>
</tr>
<tr>
<td>One negative NAT from a specimen obtained at age &gt;8 weeks</td>
<td>O</td>
</tr>
<tr>
<td>If criteria for presumptive HIV infection were initially met by one positive HIV NAT: At least two negative tests from separate specimens, one of which is a NAT from a specimen obtained at age &gt;8 weeks</td>
<td>O</td>
</tr>
<tr>
<td>If criteria for presumptive HIV infection were initially met by one positive HIV NAT: At least two negative tests from separate specimens, one of which is an HIV antibody test obtained at age &gt;6 months</td>
<td>O</td>
</tr>
<tr>
<td>Laboratory criteria for definitive or presumptive HIV infection not met</td>
<td>N N N N N</td>
</tr>
</tbody>
</table>
**Clinical Evidence**

| Note written by qualified medical-care provider states patient is not HIV infected | N |

**Combined Laboratory and Clinical Evidence**

| Above criteria in this table for being uninfected not met | N |

**NOTES:**

N = All “N” criteria in the same column are **necessary** to classify a case as confirmed.

O = At least one of these “O” (Optional) criteria in each category in the same column—in conjunction with the “N” criteria in the same column—is required to classify a case as confirmed.

### Table 4. Criteria for classifying the stage of HIV infection as Stage 0.

Note: The criteria in the following table are intended to reflect the first part of the criteria for staging in the narrative description in *Criteria for the Classifying the Stage of HIV Infection – Stage 0* section above.

<table>
<thead>
<tr>
<th>Laboratory Evidence</th>
<th>Retrospective Detection</th>
<th>Prospective Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>First positive HIV test was 1 to 180 days after negative, undetectable, or indeterminate HIV test.</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>First positive HIV test was 0 to 30 days before negative or indeterminate HIV antibody test.</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>First positive test was confirmed by a second positive HIV test 0 to 30 days after negative/indeterminate antibody test.</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>The negative/indeterminate antibody test was less sensitive than first positive test (based on the test sensitivity ranking listed below).</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>The negative/indeterminate antibody test was less sensitive than the second positive test (based on the test sensitivity ranking listed below) if those tests were on the same date.</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Type of HIV is not HIV-2 (See criteria for HIV-2 in Table 2)</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>The negative, indeterminate, or undetectable HIV test result used as the criterion for earliness of infection was not &gt;60 days after an HIV infection diagnosis based on clinical (non-laboratory) evidence, a CD4+ T-lymphocyte count &lt;200 cells/μL, or diagnosis of an opportunistic illness indicative of Stage 3 HIV infection (see Appendix).</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

**Combined laboratory and clinical evidence**

| Criteria for confirmed case of HIV infection (Table 1) were met | N | N |
| ≤180 days have elapsed after diagnosis | N | N |
**Epidemiologic Evidence**

| HIV infection was not acquired perinatally from biological mother | N | N |

**NOTES:**
N = All "N" criteria in the same column are necessary to classify the stage as Stage 0.

**HIV Test Sensitivity Tiers, ranked in descending order of sensitivity:**
1. Nucleic acid test (NAT), qualitative or quantitative (assumed most sensitive)
2. Combination antigen/antibody test
3. EIA (not rapid, not type-differentiating, assumed able to detect IgM)
4. rapid immunoassay, including HIV-1/HIV-2 viral type-differentiating rapid tests
5. HIV-1 Western blot, immunoblot, line immunoassay, or immunofluorescence assay (assumed least sensitive)

**Table 5. Criteria for classifying the stage of HIV infection as Stage 1, 2, 3, or Unknown.**
Note: The criteria in the following table are intended to reflect the remaining part of the criteria for staging in the narrative description in *Criteria for the Classifying the Stage of HIV Infection – Stage 1, 2, 3, or Unknown* section above.

<table>
<thead>
<tr>
<th>Criteria for Stage</th>
<th>Age</th>
<th>≥13 years</th>
<th>&lt;13 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage</strong></td>
<td></td>
<td>1 2 3</td>
<td>Unknown 3</td>
</tr>
<tr>
<td><strong>Laboratory Evidence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria for Stage 0 not met</td>
<td></td>
<td>N N N N</td>
<td>N N N N N</td>
</tr>
<tr>
<td>CD4+ T-lymphocyte count &gt;500 cells/μL, or, if unknown, CD4+ Tlymphocyte percentage of total lymphocytes &gt;26%</td>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CD4+ T-lymphocyte count 200—499 cells/μL, or, if unknown, CD4+ Tlymphocyte percentage 14%—26%</td>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>CD4+ T-lymphocyte count &lt;200 cells/μL, or, if unknown, CD4+ Tlymphocyte percentage &lt;14%</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>CD4+ T-lymphocyte count and percentage unknown</td>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical Evidence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis of opportunistic illness</td>
<td></td>
<td>O N</td>
<td></td>
</tr>
<tr>
<td>No diagnosis of opportunistic illness</td>
<td></td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**
N = All "N" criteria in the same column are necessary to classify the stage as 1, 2, 3, or U (Unknown/undefined).
O = At least one of these “O” (Optional) criteria in each category in the same column—in conjunction with the “N” criteria in the same column—is required to classify the stage.
The stage characterizes the status of HIV infection at a particular date. The stage may be defined in alternative ways with reference to the date of interest. For example, the stage on the date of initial diagnosis (which does not change over time, and may be based on CD4+ T-lymphocyte values within a short time [e.g., 3 months] of diagnosis), the stage based on the lowest CD4+ T-lymphocyte values through a particular date (for which changes in stage are in only one direction--from less to more severe), or the stage based on the most recent CD4+ T-lymphocyte test results (for which changes can be in either direction-- from more to less severe, or from less to more severe). "U" means "unknown stage" for persons aged ≥13 years or "stage undefined" for persons aged <13 years.

**Case Investigation Process**

HIV cases reported to public health will be investigated to ensure linkage to medical care, ensure proper education is given to the patient, and contact tracing to prevent further spread of the virus.

**Outbreaks**

HIV outbreaks are rarely observed. Increases in HIV disease among a population will be investigated. Typically an outbreak will be defined when the observed rate of disease within a population or geographical area exceeds the 5-year average by 2 standard deviations.

**Identifying Case Contacts**

The contact investigation is an integral part of finding contacts. Patients should be instructed to identify their sex partners and needle-sharing partners for testing.

**Case Contact Management**

All contacts should be evaluated, and tested if they had sexual contact or shared a needle with the patient during the 12 months preceding the diagnosis of the patient, or six months from the patient’s last negative test, or if married during the past 10 years. If sexual contact or needle sharing occurred during the preceding 3 months (window period), then these contacts need to be re-tested after 3 months of their last contact.
Appendix: Stage 3-Defining Opportunistic Illnesses in HIV Infection

Bacterial infections, multiple or recurrent*
Candidiasis of bronchi, trachea, or lungs
Candidiasis of esophagus
Cervical cancer, invasive†
Coccidioidomycosis, disseminated or extrapulmonary
Cryptococcosis, extrapulmonary
Cryptosporidiosis, chronic intestinal (>1 month’s duration)
Cytomegalovirus disease (other than liver, spleen, or nodes), onset at age >1 month
Cytomegalovirus retinitis (with loss of vision)
Encephalopathy attributed to HIV§
Herpes simplex: chronic ulcers (>1 month’s duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month)
Histoplasmosis, disseminated or extrapulmonary
Isosporiasis, chronic intestinal (>1 month’s duration)
Kaposi sarcoma
Lymphoma, Burkitt (or equivalent term)
Lymphoma, immunoblastic (or equivalent term)
Lymphoma, primary, of brain
Mycobacterium avium complex or Mycobacterium kansasii, disseminated or extrapulmonary
Mycobacterium tuberculosis of any site, pulmonary†, disseminated, or extrapulmonary
Mycobacterium, other species or unidentified species, disseminated or extrapulmonary
Pneumocystis jirovecii (previously known as “Pneumocystis carinii”) pneumonia
Pneumonia, recurrent†
Progressive multifocal leukoencephalopathy
Salmonella septicemia, recurrent
Toxoplasmosis of brain, onset at age >1 month
Wasting syndrome attributed to HIV§

*Only among children aged <6 years.
†Only among adults, adolescents, and children aged ≥6 years.
§Suggested diagnostic criteria for these illnesses, which might be particularly important for HIV encephalopathy and HIV wasting syndrome, are described in the following references:
CDC. 1994 Revised classification system for human immunodeficiency virus infection in children less than 13 years of age. MMWR 1994;43(No. RR-12).
CDC. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR 1992;41(No. RR-17).
REFERENCES


UDOH. Communicable Disease Rule R388-803: HIV Test Reporting. Authority for this rule is established in Title 26, Chapter 6, Sections 3 and 3.5 of the Communicable Disease Control Act.

Centers for Disease Control, Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 46 (RR-10), 1997.l.


ARUP Labs; Physician’s Guide to Laboratory Test Selection and Interpretation.


CDC, Sexually Transmitted Diseases Treatment Guidelines, 2014.
HIV: Utah Public Health Disease Investigation Plan


✅ VERSION CONTROL

V1.06.15: The new Disease Plan format was applied. All existing sections were updated with most current information. New sections were added: Why HIV is Important to Public Health; HIV 4th Generation Testing Algorithm; Minimum Datasets.

V2.04.16: Updated the Epidemiology section with new data for Utah. Updated the Rapid Testing section to reflect the current guidance and recommended testing algorithm.
✓ **UT-NEDSS Minimum/Required Fields by Tab**

### Morbidity

#### Demographic
- Date first reported to public health
- Last Name
- First Name
- Middle Name
- Current Address
  - Street
  - Unit Number
  - City
  - State
  - County
  - Zip Code
- Address at diagnosis
  - Street
  - Unit Number
  - City
  - State
  - County
  - Zip Code
- Date of Birth
- Area Code
- Phone Number
- Birth Gender
- Current Gender Identity
- Ethnicity
- Race

#### Clinical
- Disease
- Date Diagnosed
- Health Facility
- Medical Record Number
- Died
  - (if yes) Date of Death
- Pregnant
  - (if yes) Weeks gestation at time of diagnosis?
  - (if yes) Currently in Prenatal Care?
- Has the patient delivered live-born infants prior to the previous 12 months?

#### Laboratory
- Lab
- Lab Type
- Organism
- Test Result
- Result Value
- Units
- Specimen Source
- Collection Date
- Lab Test Date
- Accession Number
- Previously tested for HIV?
  - (if yes) Most recent test date
  - (if yes) Date of last documented negative HIV test
  - (if yes) Type of test for last negative HIV test
  - (if yes) Self-reported HIV test result
- If HIV laboratory tests were not documented, is HIV diagnosis documented by a physician?
  - If YES, provide date of documentation by physician

#### Epidemiological
- Healthcare worker
- Imported from
- Other data 1 (eHARS ID)
- Other data 2 (State Number)
Investigation

Investigation Details
- Was the case interviewed?
  - (if no) Reason Not Interviewed
  - (if yes) Patient referred/linked to care
    - (if yes) Linkage to care referral type
    - (if yes) Referred to counseling services/PCRS*
    - (if yes) Given condoms and/or prevention materials*

Risk Factors
- Is the patient MSM (if male)
- Had vaginal or anal sex with a male
- Had vaginal or anal sex with a female
- Had vaginal or anal sex with a transgender person
- Had vaginal or anal sex without a condom with a male
- Had vaginal or anal sex without a condom with a female
- Had vaginal or anal sex without a condom with a transgender person
- Had vaginal or anal sex with a known or identified HIV positive male
- Had vaginal or anal sex with a known or identified HIV positive female
- Had vaginal or anal sex with a known or identified HIV positive transgender
- Had vaginal or anal sex with a male IDU
- Had vaginal or anal sex with a female IDU
- Had vaginal or anal sex with a transgender IDU
- Used injection drugs
- Shared injection drug equipment
- Additional client risk factors
- Client behavioral risk profile
- Did the patient have vaginal or anal sex with a person who is known to her to be MSM?*
- Received clotting factor*
- Heterosexual relations with a person with hemophilia/coagulation disorder*
- Heterosexual relations with a transfusion recipient with documented HIV infection*
- Heterosexual relations with a transplant recipient with documented HIV infection*
- Received transfusion of blood/blood components*
- Received transplant of tissues/organs or artificial insemination*

Attempt to Locate
- Attempt to locate outcome
  - (if Located) Enrollment status
  - (if Unable to locate) Reason for unsuccessful attempt
    - (if Other) Specify the reason why the client was unable to be located

Contacts
- How many total partners has the case had during the last 12 months?
- Total number of NAMED partners in the last 12 months?
- Total number of named MALE partners?
- Total number of named FEMALE partners?
- Total number of named TRANSGENDER partners?
- Total numbers of partners initiated?

Reporting
- Not Applicable
Administrative
- LHD cases status
- State case status
- LHD investigation/intervention started
- LHD date closed

Contacts

Demographic
- State
- Postal Code
- Date of Birth
- Birth Gender
- Ethnicity
- Race
- Disposition
- Contact Type
- Partner Type

Clinical
- Disease
- Date Diagnosed (if occurs)

Laboratory
- Test Type
- Test Result
- Collection Date
- Previous HIV test
  - (if yes) Self-Reported HIV Test Result
  - (if yes) Date of Last HIV Test

Investigation
- Initiation date
- Referral Type/Notification Plan
- Partner Notifiability
- Actual Notification Method
- Referral Basis
- Referral date
- Referred to HIV Testing
- Referred to Medical Care
- Referral Outcome
  - (if Confirmed – Accessed Service)
    HIV test performed
    - (if yes) HIV test result
    - (if yes) HIV test Result Provided To Partner

Attempt to Locate
- Was Contact Located?
  - (if no) Reason for Unsuccessful Attempt
    - (if Other) Please specify