HIV Surveillance
Metrics and Evaluation Measures for Monitoring the Implementation
of Routine HIV Testing in the U.S.

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Maximizing Opportunities for HIV Diagnosis and Prevention in the U.S.A.
Metrics/Evaluation Roundtable
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The findings and conclusions presented are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention
Measures of Spectrum of HIV Morbidity and Mortality

HIV SURVEILLANCE

HIV Infection

HIV diagnosis
(1st positive confidential test)

1st CD4 Count
1st Viral Load Test
1st Drug Resistance test

1st CD4 Count <200 (IMM-AIDS) AIDS-OI

Death

CDC
# Revised Surveillance Case Definition

## TABLE. Surveillance case definition for human immunodeficiency virus (HIV) infection among adults and adolescents (aged >13 years) — United States, 2008

<table>
<thead>
<tr>
<th>Stage</th>
<th>Laboratory evidence*</th>
<th>Clinical evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Laboratory confirmation of HIV infection and CD4+ T-lymphocyte count of ≥500 cells/μL or CD4+ T-lymphocyte percentage of ≥29</td>
<td>None required (but no AIDS-defining condition)</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Laboratory confirmation of HIV infection and CD4+ T-lymphocyte count of 200–499 cells/μL or CD4+ T-lymphocyte percentage of 14–28</td>
<td>None required (but no AIDS-defining condition)</td>
</tr>
<tr>
<td>Stage 3 (AIDS)</td>
<td>Laboratory confirmation of HIV infection and CD4+ T-lymphocyte count of &lt;200 cells/μL or CD4+ T-lymphocyte percentage of &lt;14†</td>
<td>or documentation of an AIDS-defining condition (with laboratory confirmation of HIV infection)†</td>
</tr>
<tr>
<td>Stage unknown§</td>
<td>Laboratory confirmation of HIV infection and no information on CD4+ T-lymphocyte count or percentage</td>
<td>and no information on presence of AIDS-defining conditions</td>
</tr>
</tbody>
</table>

* The CD4+ T-lymphocyte percentage is the percentage of total lymphocytes. If the CD4+ T-lymphocyte count and percentage do not correspond to the same HIV infection stage, select the more severe stage.

† Documentation of an AIDS-defining condition (Appendix A) supersedes a CD4+ T-lymphocyte count of ≥200 cells/μL and a CD4+ T-lymphocyte percentage of total lymphocytes of ≥14. Definitive diagnostic methods for these conditions are available in Appendix C of the 1993 revised HIV classification system and the expanded AIDS case definition (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]) and from the National Notifiable Diseases Surveillance System (available at http://www.cdc.gov/epo/dphsi/casedef/case_definations.htm).

§ Although cases with no information on CD4+ T-lymphocyte count or percentage or on the presence of AIDS-defining conditions can be classified as stage unknown, every effort should be made to report CD4+ T-lymphocyte counts or percentages and the presence of AIDS-defining conditions at the time of diagnosis. Additional CD4+ T-lymphocyte counts or percentages and any identified AIDS-defining conditions can be reported as recommended. (Council of State and Territorial Epidemiologists. Laboratory reporting of clinical test results indicative of HIV infection: new standards for a new era of surveillance and prevention [Position Statement 04-ID-07]; 2004. Available at http://www.cste.org/ps/2004pdf/04-ID-07-final.pdf.)

CDC. 2008 Revised Surveillance Case Definitions for HIV Infection, Incorporating the HIV Classification System and the AIDS Case Definition for Adults and Adolescents, HIV Infection Among Children Aged <18 Months, and HIV Infection and AIDS Among Children >18 Months but <13 Years, United States. MMWR 2008;57(No. RR-10).
Reporting of CD4 and VL

• CDC case report form
  – CD4 closest to diagnosis
  – First CD4 <200
  – Detectable VL (most recent)

• Reporting laws and practices (58 areas: 50 states, 6 cities, DC, Virgin Islands, Puerto Rico)
  – All CD4 values: 32 (vs. <200/<14% or other threshold)
  – Any VL result: 41 (detectable: 11; not requiredpecified: 6)
Metrics for Access to Care

**Entry into care:** a reported CD4 or Viral Load test result within a certain time period (e.g., 3 months or 12 months) of HIV diagnosis

**Regular care:** two test results (CD4 or Viral Load) within the past year

**Issues**
- Not all states require laboratories to report all CD4 and Viral Load test results
- In the past, not all CD4 or Viral Load test results were reported to CDC
  - CDC is currently deploying updated data collection software to all funded areas that allows the collection and reporting of all test results
  - Underreporting may continue to occur
- Provides limited information on the quality of care. HIV surveillance data cannot provide accurate information about treatment.
Summary

- Completeness of reporting vs. entry into care
- Large proportion of cases unstaged/not entering care

Reported CD4+ T-Lymphocyte Results for Adults and Adolescents with HIV/AIDS—33 States, 2005. HIV/AIDS Surveillance Supplemental Report - Volume 11, Number 2

- Priorities for surveillance
  - CD4 and VL reporting
  - OI reporting