



VIRGINIA

# EPIDEMIOLOGY BULLETIN

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## 1993 Revised Classification System for HIV Infection and Expanded Surveillance Case Definition for AIDS Among Adolescents and Adults\*

CDC has revised the classification system for HIV infection to emphasize the clinical importance of the CD4+ T-lymphocyte count in the categorization of HIV-related clinical conditions. This classification system replaces the system published by CDC in 1986 and is primarily intended for use in public health practice. Consistent with the 1993 revised classification system, CDC has also expanded the AIDS surveillance case definition to include all HIV-infected persons who have 200 CD4+ T-lymphocytes/ $\mu$ L, or a CD4+ T-lymphocyte percentage of total lymphocytes of <14. This expansion includes the addition of three clinical conditions — pulmonary tuberculosis, recurrent pneumonia, and invasive cervical cancer — and retains the 23 clinical conditions in the AIDS surveillance case definition published in 1987; it is used by all states for AIDS case reporting, effective January 1, 1993.

### Revised HIV Classification System for Adolescents and Adults

The etiologic agent of acquired immunodeficiency syndrome (AIDS) is a retrovirus designated human immunodeficiency virus (HIV). The CD4+ T-lymphocyte is the primary target for HIV infection

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because of the affinity of the virus for the CD4 surface marker. The CD4+ T-lymphocyte coordinates a number of important immunologic functions, and a loss of these functions results in progressive impairment of the immune response. Studies of



the natural history of HIV infection have documented a wide spectrum of disease manifestations, ranging from asymptomatic infection to life-threatening conditions characterized by severe immunodeficiency, serious opportunistic infections, and cancers. Other studies have shown a strong association between the development of life-threatening opportunistic illnesses and the absolute number (per microliter of blood) or percentage of CD4+ T-lymphocytes. As the number of CD4+ T-lymphocytes decreases, the risk and severity of opportunistic illnesses increase.

Measures of CD4+ T-lymphocytes are used to guide clinical and therapeutic management of HIV-infected persons. Antimicrobial prophylaxis and antiretroviral therapies have been shown to be most ef-

fective within certain levels of immune dysfunction. As a result, antiretroviral therapy should be considered for all persons with CD4+ T-lymphocyte counts of <500/ $\mu$ L, and prophylaxis against *Pneumocystis carinii* pneumonia (PCP), the most common serious opportunistic infection diagnosed in men and women with AIDS, is recommended for all persons with CD4+ T-lymphocyte counts of <200/ $\mu$ L and for persons who have had prior episodes of PCP. Because of these recommendations, CD4+ T-lymphocyte determinations are an integral part of medical management of HIV-infected persons in the United States.

The classification system for HIV infection among adolescents and adults has been revised to include the CD4+ T-lymphocyte count as a marker for HIV-related immunosuppression. This revision establishes mutually exclusive subgroups for which the spectrum of clinical conditions is integrated with the CD4+ T-lymphocyte count. The objectives of these changes are to simplify the classification of HIV infection, to reflect current standards of medical care for HIV-infected persons, and to categorize more accurately HIV-related morbidity.

The revised CDC classification system for HIV-infected adolescents and adults§ categorizes persons on the basis of clinical conditions associated with HIV infection and CD4+ T-lymphocyte counts. The system is based on three ranges of CD4+ T-lymphocyte counts and three clinical categories and is represented by a matrix of nine mutually exclusive categories (Table 1). This system replaces the classifica-

**Table 1. 1993 Revised Classification System for HIV Infection and Expanded AIDS Surveillance Case Definition for Adolescents and Adults\***

CD4+ T-cell categories	Clinical categories		
	(A) Asymptomatic, acute (primary) HIV or PGL <sup>†</sup>	(B) Symptomatic, not (A) or (C) conditions <sup>‡</sup>	(C) AIDS-indicator conditions <sup>§</sup>
(1) ≥500/μL	A1	B1	C1
(2) 200-499/μL	A2	B2	C2
(3) <200/μL AIDS-indicator T-cell count	A3	B3	C3

\*The shaded cells illustrate the expanded AIDS surveillance case definition. Persons with AIDS-indicator conditions (Category C) as well as those with CD4+ T-lymphocyte counts <200/μL (Categories A3 or B3) will be reportable as AIDS cases in the United States and Territories, effective January 1, 1993.

<sup>†</sup>PGL=persistent generalized lymphadenopathy. Clinical Category A includes acute (primary) HIV infection (29,30).

<sup>‡</sup>See text for discussion.

<sup>§</sup>See Appendix B.

tion system published in 1986, which included only clinical disease criteria and which was developed before the widespread use of CD4+ T-cell testing.

### CD4+ T-Lymphocyte Categories

The three CD4+ T-lymphocyte categories are defined as follows:

- Category 1: ≥500 cells/μL
- Category 2: 200-499 cells/μL
- Category 3: <200 cells/μL

These categories correspond to CD4+ T-lymphocyte counts per microliter of blood and guide clinical and therapeutic actions in the management of HIV-infected adolescents and adults. The revised HIV classification system also allows for the use of the percentage of CD4+ T-cells (Table 2).

HIV-infected persons should be classified based on existing guidelines for the medical management of HIV-infected persons. Thus, the lowest accurate, but not necessarily the most recent, CD4+ T-lymphocyte count should be used for classification purposes.

### Clinical Categories

The clinical categories of HIV infection are defined as follows:

**Category A** consists of one or more of the conditions listed below in an adolescent or adult (≥13 years) with documented HIV infection. Conditions listed in Categories B and C must not have occurred.

- Asymptomatic HIV infection
- Persistent generalized lymphadenopathy
- Acute (primary) HIV infection with accompanying illness or history of acute HIV infection

**Category B** consists of symptomatic conditions in an HIV-infected adolescent or adult that are not included among con-

ditions listed in clinical Category C and that meet at least one of the following criteria: a) the conditions are attributed to HIV infection or are indicative of a defect in cell-mediated immunity; or b) the conditions are considered by physicians to have a clinical course or to require management that is complicated by HIV infection. Examples of conditions in clinical Category B include, but are not limited to:

- Bacillary angiomatosis
- Candidiasis, oropharyngeal (thrush)
- Candidiasis, vulvovaginal; persistent, frequent, or poorly responsive to therapy
- Cervical dysplasia (moderate or severe)/cervical carcinoma in situ
- Constitutional symptoms, such as fever (38.5 C) or diarrhea lasting 1 month
- Hairy leukoplakia, oral
- Herpes zoster (shingles), involving at least two distinct episodes or more than one dermatome
- Idiopathic thrombocytopenic purpura
- Listeriosis
- Pelvic inflammatory disease, particularly if complicated by tubo-ovarian abscess
- Peripheral neuropathy

For classification purposes, Category B conditions take precedence over those in Category A. For example, someone previously treated for oral or persistent vaginal candidiasis (and who has not developed a Category C diseases but who is now asymptomatic should be classified in clinical Category B.

**Category C** includes the clinical conditions listed in the AIDS surveillance case definition (see box on page 3). For classification purposes, once a Category C condition has occurred, the person will remain in Category C.

### Expansion of the CDC Surveillance Case Definition for AIDS

In 1991, CDC, in collaboration with the Council of State and Territorial Epidemiologists (CSTE), proposed an expansion of the AIDS surveillance case definition. This proposal was made available for public comment in November 1991 and was discussed at an open meeting on September 2, 1992. Based on information presented and reviewed during the public comment period and at the open meeting, CDC, in collaboration with CSTE, has expanded the AIDS surveillance case definition to include all HIV-infected persons with CD4+ T-lymphocyte counts of <200 cells/μL or a CD4+ percentage of <14. In addition to retaining the 23 clinical conditions in the previous AIDS surveillance definition, the expanded definition includes pulmonary tuberculosis (TB), recurrent pneumonia, and invasive cervical cancer.¶ This expanded definition requires laboratory confirmation of HIV infection in persons with a CD4+ T-lymphocyte count of <200 cells/μL or with one of the added clinical conditions. This expanded definition for reporting cases to CDC became effective January 1, 1993.

In the revised HIV classification system, persons in subcategories A3, B3, and C3 meet the immunologic criteria of the surveillance case definition, and those persons with conditions in subcategories C1, C2, and C3 meet the clinical criteria for surveillance purposes (Table 1).

**Table 2. Equivalences for Absolute Numbers of CD4+ T-lymphocytes and CD4+ Percentage\***

CD4+ T-cell category	CD4+ T-cells/μL	CD4+ percentage (%)
(1)	≥500	≥29
(2)	200-499	14-28
(3)	<200	<14

\*The percentage of lymphocytes that are CD4+ T-cells.



## Conditions Included in the 1993 AIDS Surveillance Case Definition

- Candidiasis of bronchi, trachea, or lungs
- Candidiasis, esophageal
- Cervical cancer, invasive\*
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal (>1 month's duration)
- Cytomegalovirus disease (other than liver, spleen, or nodes)
- Cytomegalovirus retinitis (with loss of vision)
- Encephalopathy, HIV-related
- Herpes simplex: chronic ulcer(s) (>1 month's duration); or bronchitis, pneumonitis, or esophagitis
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (>1 month's duration)
- Kaposi's sarcoma
- Lymphoma, Burkitt's (or equivalent term)
- Lymphoma, immunoblastic (or equivalent term)
- Lymphoma, primary, of brain
- *Mycobacterium avium* complex or *M. kansasii*, disseminated or extrapulmonary
- *Mycobacterium tuberculosis*, any site (pulmonary\* or extrapulmonary)
- *Mycobacterium*, other species or unidentified species, disseminated or extrapulmonary
- *Pneumocystis carinii* pneumonia
- Pneumonia, recurrent\*
- Progressive multifocal leukoencephalopathy
- *Salmonella* septicemia, recurrent
- Toxoplasmosis of brain
- Wasting syndrome due to HIV

\*Added in the 1993 expansion of the AIDS surveillance case definition.

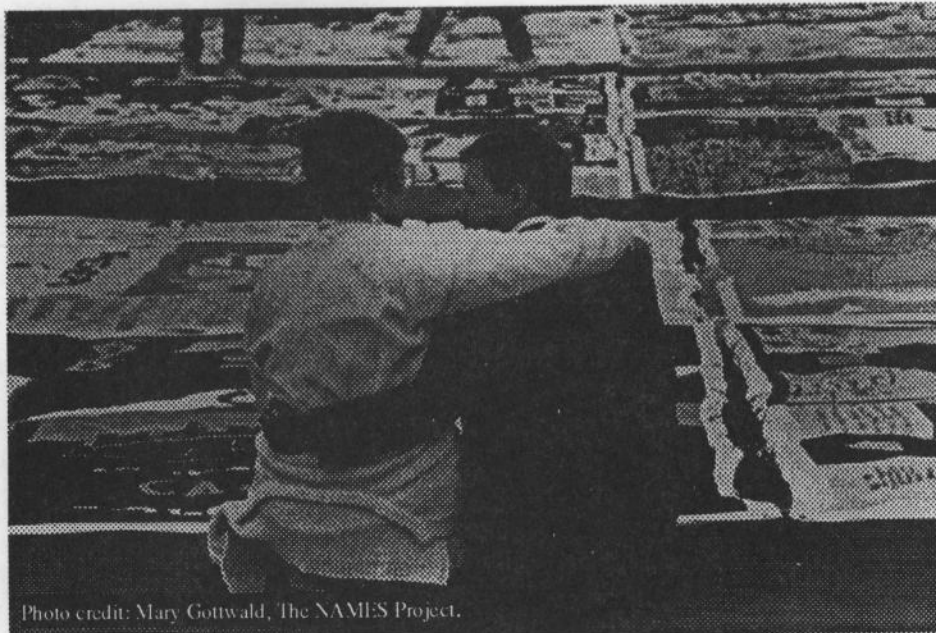


Photo credit: Mary Gottwald, The NAMIS Project.

## Uses of the HIV Classification System or AIDS Surveillance Case Definition

The revised HIV classification system and the AIDS surveillance case definition are intended for use in conducting public health surveillance. The CDC's AIDS surveillance case definition was not developed to determine whether statutory or other legal requirements for entitlement to Federal disability or other benefits are met. Consequently, this revised surveillance case definition does not alter the criteria used by the Social Security Administration in evaluating claims based on HIV infection under the Social Security disability

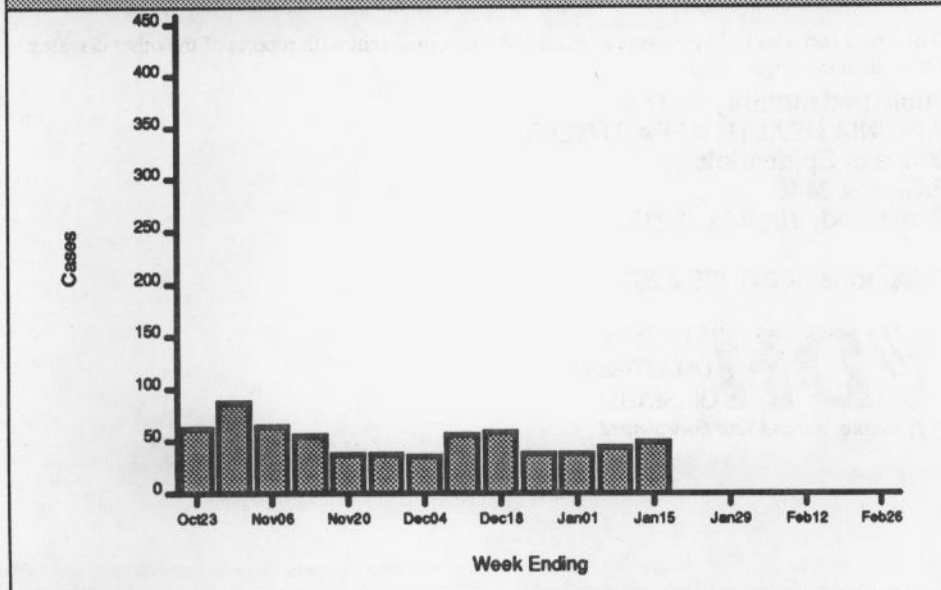
insurance and Supplemental Security Income programs. Other organizations and agencies providing medical and social services should develop eligibility criteria appropriate to the services provided and local needs.

\*Adapted from MMWR 1992;41(No. RR-17):1-19.

§Criteria for HIV infection for persons ages  $\geq 13$  years: a) repeatedly reactive screening tests for HIV antibody (e.g., enzyme immunoassay) with specific antibody identified by the use of supplemental tests (e.g., Western blot, immunofluorescence assay); b) direct identification of virus in host tissues by virus isolation; c) HIV antigen detection; or d) a positive result on any other highly specific licensed test for HIV.

¶Diagnostic criteria for AIDS-defining conditions included in the expanded surveillance case definition are presented in Appendix C and Appendix D.

Reports of Influenza-like illness from Sentinel Physicians (34 Offices Reporting) in Virginia Through January 8. Activity in Early January was Characterized as 'Regional' with One Influenza Type B Isolate in the Central Region and Several Influenza Type A Isolates from a High School Outbreak in Northern Virginia.



Cases of Selected Notifiable Diseases, Virginia, December 1 through December 31, 1992.

Disease	Total Cases Reported This Month						Total Cases Reported to Date in Virginia		
	State	Regions					This Yr	Last Yr	5 Yr Avg
		NW	N	SW	C	E			
AIDS	134	5	60	9	29	31	748	674	482
Campylobacter	66	21	16	13	7	9	656	640	659
Gonorrhea*	2570	-	-	-	-	-	16618	18172	16127
Hepatitis A	24	1	16	2	1	4	164	191	287
Hepatitis B	19	3	3	5	5	3	193	219	322
Hepatitis NANB	13	1	4	1	3	4	48	37	56
Influenza	2	0	0	1	0	1	139	1392	1649
Kawasaki Syndrome	1	0	1	0	0	0	22	24	23
Legionellosis	3	1	0	1	0	1	23	17	13
Lyme Disease	14	1	2	5	2	4	123	151	78
Measles	0	0	0	0	0	0	16	30	76
Meningitis, Aseptic	35	3	13	3	2	14	310	463	351
Meningitis, Bacterial~	21	3	4	4	0	10	125	135	168
Meningococcal Infections	5	1	0	4	0	0	61	39	60
Mumps	6	1	1	0	0	4	58	70	106
Pertussis	2	1	0	0	1	0	17	24	35
Rabies in Animals	25	11	2	3	3	6	362	253	289
Reye Syndrome	0	0	0	0	0	0	0	2	1
Rocky Mountain Spotted Fever	1	0	0	1	0	0	25	21	20
Rubella	0	0	0	0	0	0	0	0	3
Salmonellosis	91	10	23	14	21	23	957	1312	1564
Shigellosis	37	1	16	0	13	7	253	384	339
Syphilis (1° & 2°)*	56	0	2	4	6	44	727	871	647
Tuberculosis	95	4	30	10	26	25	448	379	392

*Localities Reporting Animal Rabies:* Augusta 1 horse, 1 raccoon, 1 skunk; Caroline 1 skunk; Chesapeake 1 raccoon; Fairfax 2 raccoons; Franklin County 1 raccoon, 1 skunk; Frederick 1 raccoon, 1 skunk; Goochland 1 raccoon; Greensville 1 skunk; Hopewell 1 raccoon; Middlesex 1 raccoon; Page 1 skunk; Roanoke County 1 raccoon; Rockingham 1 skunk; Shenandoah 1 raccoon, 2 skunks; Suffolk 4 raccoons.

*Occupational Illnesses:* Asbestosis 5; Carpal Tunnel Syndrome 79; Coal Workers' Pneumonconiosis 13; Loss of Hearing 10; Mesothelioma; Silicosis 1.

\*Total now includes military cases to make the data consistent with reports of the other diseases.

~Other than meningococcal

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