







Current Trends

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Classification System for Human Immunodeficiency Virus (HIV) Infection in Children Under 13 Years of Age

INTRODUCTION

With the identification of the causative agent of the acquired immunodeficiency syndrome (AIDS), a broad spectrum of clinical manifestations has been attributed to infection with the human immunodeficiency virus (HIV). With the exception of the CDC surveillance definition for AIDS (1,2), no standard definitions for other manifestations of HIV infection have been developed for children. Classification systems published to date have been developed primarily to categorize clinical presentations in adult patients and may not be entirely applicable to infants and children (3-5).

Physicians from institutions caring for relatively large numbers of HIV-infected children report that only about half of their patients with symptomatic illness related to the infection fulfill the criteria of the CDC surveillance definition for AIDS (6,7).

To develop a classification system for HIV infection in children, CDC convened a panel of consultants[•] consisting of clinicians experienced in the diagnosis and management of children with HIV infection; public health physicians; representatives from the American Academy of Pediatrics, the Council of State and Territorial Epidemiologists, the Association for Maternal Child Health and Crippled Children's Programs, the National Institute on Drug Abuse/Alcohol, Drug Abuse and Mental Health Administration, the National Institute of Allergy and Infectious Diseases/National Institutes of Health, and the Division of Maternal and Child Health/Health Resources and Services Administration; and CDC.

GOALS AND OBJECTIVES OF THE CLASSIFICATION SYSTEM

The system was designed primarily for public health purposes, including epidemiologic studies, disease surveillance, prevention programs, and health-care planning and policy. The panel attempted to devise a simple scheme that could be subdivided as needed for different purposes.

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HIV Infection - Continued

DEFINITION OF HIV INFECTION IN CHILDREN (Table 1)

Ideally, HIV infection in children is identified by the presence of the virus in blood or tissues, confirmed by culture or other laboratory detection methods. However, current tests—including culture—for detecting the virus or its antigens are not standardized and are not readily available. Detection of specific antibody to the virus is a sensitive and specific indicator of HIV infection in adults, since the majority of adults with antibody have had culture evidence of infection (8-10). Similar studies involving children have not been reported. Also, the presence of passively transferred maternal antibody in infants limits the interpretation of a positive antibody test result in this age group. Most of the consultants believed that passively transferred maternal HIV antibody could sometimes persist for up to 15 months. For this reason, two definitions for infection in children are needed: one for infants and children up to 15 months of age who have been exposed to their infected mothers perinatally, and another for older children with perinatal infection and for infants and children of all ages acquiring the virus through other means.

Infants and children under 15 months of age with perinatal infection — Infection in infants and children up to 15 months of age who were exposed to infected mothers in the perinatal period may be defined by one or more of the following: 1) the identification of the virus in blood or tissues, 2) the presence of HIV antibody as indicated by a repeatedly reactive screening test (e.g., enzyme immunoassay) plus a positive confirmatory test (e.g., Western blot, immunofluorescence assay) in an infant or child who has abnormal immunologic test results indicating both humoral and cellular immunodeficiency (increased immunoglobulin levels, depressed T4 [T-helper] absolute cell count, absolute lymphopenia, decreased T4/T8 ratio) and who meets the requirements of one or more of the subclasses listed under class P-2 (described below), or 3) the confirmation that a child's symptoms meet the previously published CDC case definition for pediatric AIDS (1,2).

The infection status of other perinatally exposed seropositive infants and children up to 15 months of age who lack one of the above immunologic or clinical criteria is indeterminate. These infants should be followed up for HIV-related illness, and they should be tested at regu-

TABLE 1. Summary of the definition of HIV infection in children

Infants and children under 15 months of age with perinatal infection

- 1) Virus in blood or tissues
- or 2) HIV antibody

and

or

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evidence of both cellular and humoral immune deficiency

and

one or more categories in Class P-2

3) Symptoms meeting CDC case definition for AIDS

Older children with perinatal infection and children with HIV infection acquired through other modes of transmission

- Virus in blood or tissues
- 2) HIV antibody
- 10
- 3) Symptoms meeting CDC case definition for AIDS

HIV Infection - Continued

lar intervals for persistence of antibody to HIV. Infants and children who become seronegative, are virus-culture negative (if blood or tissue samples are cultured), and continue to have no clinical or laboratory-confirmed abnormalities associated with HIV infection are unlikely to be infected.

Older children with perinatal infection and children with HIV infection acquired through other modes of transmission — HIV infection in these children is defined by one or more of the following: 1) the identification of virus in blood or tissues, 2) the presence of HIV antibody (positive screening test plus confirmatory test) regardless of whether immunologic abnormalities or signs or symptoms are present, or 3) the confirmation that the child's symptoms meet the previously published CDC case definition for pediatric AIDS (1, 2).

These definitions apply to children under 13 years of age. Persons 13 years of age and older should be classified according to the adult classification system (3).

CLASSIFICATION SYSTEM (Table 2)

Children fulfilling the definition of HIV infection discussed above may be classified into one of two mutually exclusive classes based on the presence or absence of clinical signs and symptoms (Table 2). Class Pediatric-1 (P-1) is further subcategorized on the basis of the presence or absence of immunologic abnormalities, whereas Class P-2 is subdivided by specific disease patterns. Once a child has signs and symptoms and is therefore classified in P-2, he or she should not be reassigned to class P-1 if signs and symptoms resolve.

Perinatally exposed infants and children whose infection status is indeterminate are classified into class P-0.

Class P-0. Indeterminate infection. Includes perinatally exposed infants and children up to 15 months of age who cannot be classified as definitely infected according to the above definition but who have antibody to HIV, indicating exposure to a mother who is infected.

Class P-1. Asymptomatic infection. Includes patients who meet one of the above defini-

TABLE 2. Summary of the classification of HIV infection in children under 13 years of age

Class P-0. Indeterminate infection

Class P-1. Asymptomatic infection

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Subclass A.	Normal immune function
Subclass B.	Abnormal immune function
Subclass C.	Immune function not tested

Class P-2, Symptomatic infection

- Subclass A. Nonspecific findings
- Subclass B. Progressive neurologic disease
- Subclass C. Lymphoid interstitial pneumonitis
- Subclass D. Secondary infectious diseases
 - Category D-1. Specified secondary infectious diseases listed in the CDC surveillance definition for AIDS
 - Category D-2. Recurrent serious bacterial infections
 - Category D-3. Other specified secondary infectious diseases

Subclass E. Secondary cancers

- Category E-1. Specified secondary cancers listed in the CDC surveillance definition for AIDS
- Category E-2. Other cancers possibly secondary to HIV infection

Subclass F. Other diseases possibly due to HIV infection

HIV Infection - Continued

tions for HIV infection but who have had no previous signs or symptoms that would have led to classification in Class P-2.

These children may be subclassified on the basis of immunologic testing. This testing should include quantitative immunoglobulins, complete blood count with differential, and T-lymphocyte subset quantitation. Results of functional testing of lymphocytes (mitogens, such as pokeweed) may also be abnormal in HIV-infected children, but it is less specific in comparison with immunoglobulin levels and lymphocyte subset analysis, and it may be impractical.

Subclass A - Normal immune function. Includes children with no immune abnormalities associated with HIV infection.

Subclass B - Abnormal immune function. Includes children with one or more of the commonly observed immune abnormalities associated with HIV infection, such as hypergammaglobulinemia, T-helper (T4) lymphopenia, decreased T-helper/T-suppressor (T4/T8) ratio, and absolute lymphopenia. Other causes of these abnormalities must be excluded. Subclass C - Not tested. Includes children for whom no or incomplete (see above) im-

munologic testing has been done.

Class P-2. Symptomatic infection. Includes patients meeting the above definitions for HIV infection and having signs and symptoms of infection. Other causes of these signs and symptoms should be excluded. Subclasses are defined based on the type of signs and symptoms that are present. Patients may be classified in more than one subclass.

Subclass A - Nonspecific findings. Includes children with two or more unexplained nonspecific findings persisting for more than 2 months, including fever, failure-to-thrive or weight loss of more than 10% of baseline, hepatomegaly, splenomegaly, generalized lymphadenopathy (lymph nodes measuring at least 0.5 cm present in two or more sites, with bilateral lymph nodes counting as one site), parotitis, and diarrhea (three or more loose stools per day) that is either persistent or recurrent (defined as two or more episodes of diarrhea accompanied by dehydration within a 2-month period).

Subclass B - Progressive neurologic disease. Includes children with one or more of the following progressive findings: 1) loss of developmental milestones or intellectual ability, 2) impaired brain growth (acquired microcephaly and/or brain atrophy demonstrated on computerized tomographic scan or magnetic resonance imaging scan), or 3) progressive symmetrical motor deficits manifested by two or more of these findings: paresis, abnormal tone, pathologic reflexes, ataxia, or gait disturbance.

Subclass C - Lymphoid interstitial pneumonitis. Includes children with a histologically confirmed pneumonitis characterized by diffuse interstitial and peribronchiolar infiltration of lymphocytes and plasma cells and without identifiable pathogens, or, in the absence of a histologic diagnosis, a chronic pneumonitis—characterized by bilateral reticulonodular interstitial infiltrates with or without hilar lymphadenopathy—present on chest X-ray for a period of at least 2 months and unresponsive to appropriate antimicrobial therapy. Other causes of interstitial infiltrates should be excluded, such as tuberculosis, *Pneumocystis carinii* pneumonia, cytomegalovirus infection, or other viral or parasitic infections.

Subclass D - Secondary infectious diseases. Includes children with a diagnosis of an infectious disease that occurs as a result of immune deficiency caused by infection with HIV.

Category D-1. Includes patients with secondary infectious disease due to one of the specified infectious diseases listed in the CDC surveillance definition for AIDS: *Pneumocystis carinii* pneumonia; chronic cryptosporidiosis; disseminated toxoplasmosis with onset after 1 month of age; extra-intestinal strongyloidiasis; chronic isosporiasis; candidiasis (esophageal, bronchial, or pulmonary); extrapulmonary cryptococco-

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HIV Infection - Continued

sis; disseminated histoplasmosis; noncutaneous, extrapulmonary, or disseminated mycobacterial infection (any species other than leprae); cytomegalovirus infection with onset after 1 month of age; chronic mucocutaneous or disseminated herpes simplex virus infection with onset after 1 month of age; extrapulmonary or disseminated coccidioidomycosis; nocardiosis; and progressive multifocal leuko-encephalopathy.

Category D-2. Includes patients with unexplained, recurrent, serious bacterial infections (two or more within a 2-year period) including sepsis, meningitis, pneumonia, abscess of an internal organ, and bone/joint infections.

Category D-3. Includes patients with other infectious diseases, including oral candidiasis persisting for 2 months or more, two or more episodes of herpes stomatitis within a year, or multidermatomal or disseminated herpes zoster infection.

Subclass E - Secondary cancers. Includes children with any cancer described below in categories E-1 and E-2.

Category E-1. Includes patients with the diagnosis of one or more kinds of cancer known to be associated with HIV infection as listed in the surveillance definition of AIDS and indicative of a defect in cell-mediated immunity: Kaposi's sarcoma, B-cell non-Hodgkin's lymphoma, or primary lymphoma of the brain.

Category E-2. Includes patients with the diagnosis of other malignancies possibly associated with HIV infection.

Subclass F - Other diseases. Includes children with other conditions possibly due to HIV infection not listed in the above subclasses, such as hepatitis, cardiopathy, nephropathy, hematologic disorders (anemia, thrombocytopenia), and dermatologic diseases.

Reported by: AIDS Program, Center for Infectious Diseases, CDC.

Editorial Note: This classification system is based on present knowledge and understanding of pediatric HIV infection and may need to be revised as new information becomes available. New diagnostic tests, particularly antigen detection tests and HIV-specific IgM tests, may lead to a better definition of HIV infection in infants and children. Information from several natural history studies currently under way may necessitate changes in the subclasses based on clinical signs and symptoms.

A definitive diagnosis of HIV infection in perinatally exposed infants and children under 15 months of age can be difficult. The infection status of these HIV-seropositive infants and children who are asymptomatic without immune abnormalities cannot be determined unless virus culture or other antigen-detection tests are positive. Negative virus cultures do not necessarily mean the child is not infected, since the sensitivity of the culture may be low. Decreasing antibody titers have been helpful in diagnosing other perinatal infections, such as toxoplasmosis and cytomegalovirus. However, the pattern of HIV-antibody production in infants is not well defined. At present, close follow-up of these children (Class P-0) for signs and symptoms indicative of HIV infection and/or persistence of HIV antibody is recommended.

The parents of children with HIV infection should be evaluated for HIV infection, particularly the mother. The child is often the first person in such families to become symptomatic When HIV infection in a child is suspected, a careful history should be taken to elicit possible risk factors for the parents and the child. Appropriate laboratory tests, including HIV serology, should be offered. If the mother is seropositive, other children should be evaluated regarding their risk of perimatally acquired infection. Intrafamilial transmission, other than perinatal or sexual, is extremely unlikely. Identification of other infected family members allows for appropriate medical care and prevention of transmission to sexual partners and future children (11, 12).

HIV Infection -- Continued

The nonspecific term AIDS-related complex has been widely used to describe symptomatic HIV-infected children who do not meet the CDC case definition for AIDS. This classification system categorizes these children more specifically under Class P-2.

The development and publication of this classification system does not imply any immediate change in the definition of pediatric AIDS used by CDC for reporting purposes (1,2). Changes in this definition require approval by state and local health departments. However, changes in the definition for reporting cases have been proposed by CDC and are awaiting state and local approval.

Written comments are encouraged. They should be mailed to the AIDS Program, Center for Infectious Diseases, Centers for Disease Control, Atlanta, GA 30333.

References

Anthrax Botulism:

Cholera

Diphtheria

Brucellosis (Mich 1, Calif 1)

Congenital rubella syndrome

1 year

Congenital syphilis, ages •

1 CDC. Update: acquired immunodeficiency syndrome (AIDS)—United States. MMWR 1984;32: 688-91.

 CDC Revision of the case definition of acquired immunodeficiency syndrome for national reportint -- United States. MMWR 1985;34:373-5.

(Continued on page 235)

Cum. 1987

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	1	5th Week End	ling	Cumulative, 15th Week Ending			
Disease	Apr. 18, 1987	Apr 12, 1986	Median 1982-1986	Apr. 18, 1987	Apr. 12 1986	Median 1982-1986	
Acquired Immunodeficiency Syndrome (AIDS) Aseptic meningitis Encephalitis: Primary (arthropod-borne	518 80	376 92	N 71	5,465 1,262	3,578 1,241	N 1,174	
& unspeci Post-infectious	15 3	17	19	214 13	251 30	256 27	
Gonorrhea: Civilian Military	12,921 463	16,617 234	16,047 341	225,611 4,969	239,771 4,487	239,771	
Hepatitis: Type A Type B	- 419 454	409 522	409 482	7,067	6,495 7,137	6,495 7,033	
Non A, Non B Unspecified	64 68	55 96	N 122	857 964	960 1,431	N 1,476	
Legione‼osis Leprosy	24 3	9 7	N 6	196	172 79	N 77	
Malaria Measles: Total*	100	13 203	15 B1	185 949	205 1,811	198 723	
Indigenous Imported	99 1	199	N	835 114	1,758	N N	
Meningococcal infections: Total Civilian Military	40 40	69 69	-67 67	1,054 1,053	979	991 980	
Mumps Pertussis	358 26	151	101	5,346 516	2 1,023 687	2 1,206 525	
Rubella (German measles) Syphilis (Primary & Secondary): Civilian	12 517	428	43 11 485	95	144 7,315	156	
Toxic Shock syndrome	4	10	10 N	61 90	72	96 N	
Tuberculosis Tutaremia	329	375	433	5.538 23	5,430 19	5,726	
Typhoid Fever Typhus (ever, tick-borne (RMSF)	11	5	7	70	65 20	90	
Rabies, enimal	118	139	155	1,277	1,502	1,502	

TABLE I. Summary - cases specified notifiable diseases, United States

	Cum. 1987	
	Leptospirosis	
Foodborne	1 Plague	
Infant (Calif 2)	18 Poliomyelitis, Paralytic	
Other	- Psittacosis (Md 1)	

Rables, human Tetanus (Oreg 1)

Typhus fever, flea-borne (endemic, murine)

Trichinosis

22

2

1

TABLE II. Notifiable diseases of low frequency. United States

'One of the 100 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations

TABLE III. Cases of specified notifiable diseases, United States, weeks ending April 18, 1987 and April 12, 1986 (15th Week)

	4100	Aseptic	Encep		Gona	rrhea	н	epaintis (V	iral), by ty	pe	Legionel		
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UNITED STATES	5,465	80	214	13	225,611	239,771	419	454	64	68	24	63	
NEW ENGLAND	215	3	9	1	7.990 249	5,239	18	31	8	3	1	4	
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Upstate N.Y N.Y. City	223	5	15	:	4,787 20,300	4,519 24,599	12	13 36	2	20	:	. 5	
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Ohio	332 70	· · ·	22	-	6,898	7,715	1	4	1	5	11	- i	
nd .	31	1	3	-	2,734 3,416	3,734 8,409	1 10	2 10	1	ī	8		
Mich Nis	46 33	9	20 2		10,390 2,462	9,706 3,597	9	17	2	4	1		
NN CENTRAL	125	2	13	. •	9,340	10,393	24	13	2	3	2		
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Nev	21		-		1,344	1,279		4					
PACIFIC Wash	1,664 69	17	39 6	2	34,910 2,381	33,779 2,667	183 51	117 33	26 13	25	2	45 2	
Oreg	37	-	•	-	1.271	1.316	28	13	3		-		
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N Not notifiable

U Unavailable

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TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending April 18, 1987 and April 12, 1986 (15th Week)

*For measles only, imported cases includes both out-of-state and international importations

N Not notifiable

U Unavailable International

§Out-of-state

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TABLE III. (Cont'd.) Cases of specified natifiable diseases, United States, weeks ending	
April 18, 1987 and April 12, 1986 (15th Week)	

Reporting Area	Syphilis (Primary & S		Toxic shock Syndrome	Tubero	ulasis	Tula remia	Typhoid Fever	Typhus Fever (Tick borne) (RMISF)	Rabies Animal
	Cum 1987	Cum 1986	1987	Cum 1987	Cum 1986	Cum 1987	Cum 1987	Cum 1987	Cum 1987
INITED STATES	9,357	7,315	10	5,538	5,430	23	70	12	1,277
IFW ENGLAND	134	140 10		144	173	:	4	•	
1 H	. i	8		5	9				•
11	1	្ម	•	4	7	•			•
Aass 11	72	67	:	58 18	82	•	3		
ann	57	43	-	51	46		· 1		
NO ATLANTIC	1,619	1,003		1,016	1,101		7		112
pstate N Y	63	51		171	181		ź		9
Y City	1,127	570	• :	501	526	•		•	:
u i	187	196 186	•	155 189	193 201		5		102
'a	242	100	•	105	201	•	•	-	104
N CENTRAL	154	275	3	678	680	1	10	•	33
hiu	29	34	· • •	137	102	t	5	•	4
ndi : L	15 52	40 142	•	58 272	86 302		1		17
, Aich	43	43	2	189	151		2		
Vis	15	16	- - -	22	39	•	1	*	12
VN CENTRAL	39	67	1	158	154	5	3	•	265
finn	5	8	-	44	36		ĩ	-	65
wa	7	5	•.	8	11	2		-	86
la N-L	20	38	•	76	84 2	3	2	•	16 29
l Dak Dak	3	. 1	- î	6	5				47
ebr	3	8	:	11	· 4	•	•	- -	9
ans	1	5	•	10	12	•	•	-	13
ATLANTIC	3,195	2,151	1	1,118	1,060	3	5	4	344
el Id	27	10	:	97	77	:			9:
c	98	105	•	34	42			•	19
а	78	139	•	102	102	1		. •	120
V Va	4	3	· -	35	40		!	· 1	1.5
C	180 226	155	i	112	121		1	3	16
a	477	383		157	132	-			5
la	1,923	1,013	-	465	404		. 3	•	* 20
S CENTRAL	558	486	-	446	493	2	1	3	108
¥	4	25	•	117	133	1	:	2	5
enn	280	202	•	113	136 162	•	1.	2	30
la liss	114	183	:	59	62	ĩ	:	. i -	.÷
/ S. CENTRAL	1,300	1,586	1	600	656	7	3,	4	183
irk B	63 227	77		57 80	83	2			. 51
kla	43	47	-	69	56	5	2	4	Ē
Ba -	967	1,215	1	394	392		2	• •	119
OUNTAIN	219	189	2	134	111	5	3		103
lont -	7	2		- 8	5			•	41
laho	1 22	1	- 1	16	5	1	· •	-	
la Na	22	61	:		5	i			25
Mex	15	22	· -	25	25		3		
112	102	80	2	76	54	2			25
lah	5 38	3 20	:	1 8	4	1		•.	
ev	30	20	•	0	1.1				
ACIFIC	2,139,	1,418	2	1,246	1,002	•	34	ť	13
lash	20	38	•	54	55		-		
reg ahl	66 2.047	28 1,337	2	39 1,076	36 844	•		1	1.04
laska	2.047	1,237	<i>2</i>	1.078	17		33	1	13
awan	4	15		59	50		1		
uam	· 1	1	•.	4	· ·				
R	292	245	-	76	76	· · · ·			2
1	3 83	45	-	51	1		8		
c Trust Terr									

U Unavailable

TABLE IV. Deaths in 121 U.S. cities.* week ending April 18, 1987 (15th Week)

		All Caus	es, By A	ge lYear	s)			_		All Cause	s, By A	je lYeert	4		
Reporting Area	Ail Ages	≥65	45-84	25.44	1-24	<1	P&I** Total	Reporting Area	All Ages	≥85	45-64	25-44	1-24	< 1	P&I** Total
NEW ENGLAND Boston Mass Bridgeport Conn Cambridge Mass Fall River Mass Hartford Conn Lowell Mass New Bedford Mass New Haven. Conn Providence R I Somervitle, Mass Springfield Mass	669 181 37 42 23 41 35 13 55 56 14 49	481 120 29 36 19 33 26 9 30 28 30 28 38 10 29	121 32 7 4 4 8 3 2 10 7 4 14	37 12 1, 2 1 1 1 1 4 7 7	12 6 3	18 11	61 17 2 6 1 4 2 4 2 5 2 4	S AILAN IIC Atlanta Ga Balinmore Md Charloite N C Jacksonville Fla Morni Fla Norfolk Va Savannah Ga Si Petersburg, Fla Washington D C Wilmington. Del	1, 196 162 201 97 147 94 52 100 51 87 85 94 28	739 97 128 64 98 55 23 53 29 73 56 41 22	263 36 38 20 38 19 15 35 14 10 15 21 3	101 20 19 3 6 8 4 1 1 17 1	46 8 5 4 5 4 6 3 1 2 1 3 7	47 1 10 5 1 7 5 3 2 2 3 8	58 1 9 5 8 1 3 1 7 5 6 2
Albany NY Allentown, Pa Buffalo NY Camden, NJ Elizabeth, NJ Erie, Pa t	29 71 2.628 57 46 102 26 14 51 43	22 52 1,748 38 36 74 15 9 39 28	5 13 532 14 8 17 7 2 10 9	1 3 247 4 2 8 2 3 1 5	1 48 1 2	2 53 1	1 11 114 1 3 7 1 1 4	ES CENTRAL Birmingham Ala Chattanooga, Tenn Krittavville, Tenn Louisville Ky Memphis Tenn Mohile Ala Montgomery, Ala Nashville Tenn	771 116 61 78 79 143 101 61 132	499 84 34 49 54 94 63 39 82	185 21 18 23 17 37 26 13 30	42 4 7 6 6 6 5 6	26 4 1 1 5 2 3 9	19 3 1 3 1 1 4 5	43 5 4 7 2 15 4 1 5
Jersey City, NJ ⁶ NY City, NY Newark, NJ Paterson NJ Philadelphia, Pa Philadelphia, Pa Heading Pa Rochester, NY Schenectady, NY Scranton, Pa t Syracuse, NY Tirenton, NJ Ulica NY Yonkers, NY	1,278 91 27 404 79 31 143 30 27 95 37 13 34	208 35 18 301 55 23 102 26 23 85 22 25		52 21 20 20 2 1 10 1 2 5 1 5	28 7 6 1 3	1 19 4 10 5 1 8 2	1 47 3 1 8 6 1 7 1 4 2 3 4	W S CENTRAL Austin Tex Baton Rougn La Corpus Christi Tex Dallas Tex El Paso. Jex Fort Worth Tex Houston Tex § Lutte Rock Aix New Orleans La San Antonio Tex Shreveport La Tulsa Okta	1,268 62 38 34 210 71 102 308 96 73 187 31 56	798 38 25 21 126 42 64 176 65 48 131 131 25 37	278 15 6 7 50 13 19 74 16 17 44 15 12	110 8 23 12 11 34 4 4 5	39 1 2 1 4 2 5 1 3 4 2 3 1 1	41 2 7 2 3 11 5 2 5	60 10 5 5 5 7 8 9 2
Akron, Ohio Canton Ohio Chicago, III § Cincinati, Ohio Cleveland, Ohio Cleveland, Ohio Dayton, Ohio Detroit, Mich Evansville, Ind	2.255 41 37 564 132 156 175 109 288 44	1 492 28 20 362 92 108 76 179 29	9 9 125 21 38 48 25 60 10	2 45 9 12 10 3 28 5	50 1 10 5 5 5 8	80 1 22 5 6 4 5 13	71 2 16 11 1 2 7	MOUNTAIN Albuquerque. N Me Colo Springs: Colo Derver Colo Las Vegas Nev Ogden Ulah Phoema: Ariz Pueblo Colo Salt Lake City Utah Tucson Ariz	46 132 96 26 152 23	456 55 26 94 61 15 91 17 23 74	153 14 13 28 24 4 33 2 10 25	63 11 4 9 3 18 1 5 4	30 13 1 2 2 2 8 1	18 3 2 1 2 8 1	36 5 6 8 4 1 2 1 9
Fort Wayne Ind Gary Ind Grand Rapids Micl Indianapolis Ind Madison Wis Milwaukee Wis Peoria II Rockford III South Bend Ind Toledo Ohio Youngstown Ohio	156 38 120 41 41 36 84	25 8 65 94 31 85 30 33 24 61 41	12 33 33 4 25 6 17 5	2 4 14 5 1 1 4 3	2 2 5 1 1 4	2 3 10 1 5 1 1	1832 25561	PACIFIC Berkeley, Cahl Fresno Cahl Glendale Cahl Honolulu Hawan Long Beach, Cahl Uos Angeles, Cahl Oakland, Calif Pasadena Cahl Portland, Oreg	1,951 15 94 18 65 82 478 92 43 130	1.308 11 70 16 46 58 314 62 25 85	337 16 2 5 17 79 16 10 24	8	72 4 2 3 19 1 2 4	58 2 1 4 7 3 9	132 6 3 7 9 22 5 4 6
W N CENTRAL Des Moines Iowa Duluth Minn Kansas City Kans Kansas City Mo Lincoln Nebr Minneapolis Minn Omaha Nebr St Louis Mp St Louis Mp St Paul Minn Wichila Kans	901 84 39 30 123 37 156 98 166 82 86	614 62 23 20 84 31 121 67 94 55	174 17 10 20 5 24 20 47 12 17		30 3 1 4 2 3 1 7 4 5	36 1 4 1 5 3 8 1 6	63 4 3 17 17 13 12 7 1 3	Sachamento Caht San Diego, Caht San Francisco, Caht San Jose Caht San Jose Caht Seattle Wash Spokane Wash Tacoma Wash ToTAL	146 175 141 184 148 81 59 12,362	87 125 85 128 103 51 42 † 8.135	32 24 30 28 22 18 14 2.521	14 17 21 8 10 6 3 973	7 6 3 10 8 3 3 353	6 3 10 5 3 370	14 24 18 4 3 5 638

Mortality data in this table are voluntarily reported from 121 cities in the United States most of which have populations of 100 000 or more A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included. If Pneumona and influence of changes in report. If methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 5 weeks total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks

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HIV Infection - Continued

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 TABLE V. Estimated years of potential life lost before age 65 and cause-specific mortality, by cause of death — United States, 1985

Cause of mortality (Ninth Revision ICD)	YPLL for persons dying in 1985°	Cause-specific mortality, 1985 [†] (rate/100,000)
ALL CAUSES		
(Total)	11,844,475	874.8
Unintentional Injuries [§]		
(E800-E949)	2,235,064	38.6
Malignant neoplasms		
(140-208)	1,813,245	191.7
Diseases of the heart		
(390-398,402,404-429)	1,600,265	325.0
Suicide, homicide		
(E950-E978)	1,241,688	20.1
Congenital anomalies		
(740-759)	694,715	5.5
Prematurity ¹¹ (765, 769)	444,931	2.9
Sudden Infant death syndrome	444,551	2. 5
(798)	313.500	2.0
Cerebrovascular disease	· · · · · ·	
(430-438)	253,044	64.0
Chronic liver diseases		
and cirrhosis		
(571)	235,629	11.2
Pneumonia and influenza		
(480-487)	168,949	27.9
Acquired Immunodeficiency	450 505	
Syndrome (AIDS)** Chronic obstructive	152,595	2.3
pulmonary diseases		
(490-496)	129,815	31.2
Diabetes mellitus	120,010	31.2

*For details of calculation, see footnotes to Table V, MMWR 1987;36:56.

[†]Cause-specific mortality rates as reported in the National Center for Health Statistics *Monthly Vital Statistics Report* are compiled from a 10% sample of all deaths.

§Equivalent to accidents and adverse effects.

[¶]Category derived from disorders relating to short gestation and respiratory distress syndrome **Reflects CDC surveillance data. No ICD code has been assigned for AIDS.

HIV Infection - Continued

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- 12.CDC. Additional recommendations to reduce sexual and drug abuse-related transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus. MMWR 1986;35:152-5.

Perspectives in Disease Prevention and Health Promotion

Premature Mortality Due to Sudden Infant Death Syndrome — United States, 1980-1986

Years of potential life lost before age 65 (YPLL) highlights the mortality trends in younger age groups, especially infants (<1 year of age). In 1986, sudden infant death syndrome (SIDS) accounted for an estimated 336,884 YPLL* and ranked as the eighth leading cause of YPLL. In comparison, in 1984 and 1985, SIDS accounted for 316,909 and 313,386 YPLL, respectively, and ranked as the seventh leading cause of YPLL.

In Table V, deaths are attributed to SIDS if the underlying cause of death is classified as category 798.0 according to the International Classification of Diseases, 9th Revision (ICD-9), and age at death was <1 year. In the analysis reported here, the numbers and underlying causes of death are from the National Center for Health Statistics (NCHS) national mortality computer tapes. YPLL was calculated by averaging age at death for each subgroup[†] during both the neonatal period (<28 days) and the postneonatal period (28 days to <1 year), for 1980-1983, the latest year for which data are available (Table 3) (1, 2).

For 1980-1983, the average annual YPLL due to all causes of infant death was 2,787,465; 1,861,691 YPLL (66.8%) occurred because of deaths in the neonatal period, and 925,774 YPLL (33.2%) occurred because of deaths in the postneonatal period (2). During 1980-1983, 12.4% of the YPLL in the first year of life and 34.5% of the YPLL in the postneonatal period were due to SIDS.

*A projected estimate based on data from the National Center for Health Statistics Monthly Vital Statistics Report (compiled from a 10% sample of all deaths) through November 1986.

[†]YPLL = T (65-(A-'365 25)), where T = total number of infants deaths for subgroup (year, race, sex, and cause of death) and A = average age at death in days for that subgroup

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SIDS - Continued

The average annual YPLL due to SIDS during this 4-year period was 346,158. The average annual race- and sex-specific YPLL was 144,882 for white males; 92,057 for white females; 55,158 for black males; 43,702 for black females; 5,809 for other males; and 4,548 for other females. The male:female ratio for white infants was 1.6:1, compared with 1.3:1 for black infants and 1.3:1 for other infants. There were no discernible trends during this 4-year period (Table 3).

YPLL depends directly on the number of births in any given group. The average annual YPLL due to SIDS per 1,000 live births was 96.8 for white males, 65.0 for white females, 184.6 for black males, 150.6 for black females, 82.3 for other males, and 67.7 for other females.

Reported by: Pregnancy Epidemiology Br, Research and Statistics Br, Div of Reproductive Health, Center for Health Promotion and Education, CDC.

Editorial Note: SIDS and other causes of infant death consistently rank low in mortality statistics because these statistics are dominated by the underlying disease processes of the elderly. YPLL, which does not count deaths of persons 65 years or older, is an alternative method for determining the impact of particular health problems. It can quantitate these problems and thus enable public health officials to set priorities. The use of YPLL demonstrates the importance of SIDS because deaths early in life are weighted heavily in the calculation of YPLL. For comparative purposes, the total deaths attributable to SIDS for the years 1980-1983 were 5,510, 5,295, 5,278, and 5,305, respectively.

The most widely accepted definition of SIDS, proposed by Beckwith in 1968, is "the sudden death of any infant or young child, which is unexpected by history, and in which a thorough postmortem examination fails to demonstrate an adequate cause of death" (3). However, in 12% of SIDS deaths reported from 1980-1983, no autopsy was performed. Also, only children <1 year of age were included for the calculation of YPLL. Deaths that would be classified as SIDS but that occur in children ≥ 1 year of age are classified as instan-

			Yea	ar	
Race	Sex	1980	1981	1982	1993
White	Male	147,076	147,799	144,043	140,612
	Female	93,677	90,182	91,079	93,289
	Total	240,754	237,981	235,122	233,901
Black	Male	58,841	52,186	53,993	55,614
	Female	48,042	42,472	41,635	42,359
	Total	106,884	94,658	95,628	98,273
Other	Male	5,112	6,018	6,344	5,762
	Female	3,950	4,141	4,598	5,504
	l'otal	9,062	10,159	10,942	11,266
Total*	Male	211,030	206,003	204,380	201,988
	Female	145,670	136,795	137,312	141,452
	Total	356,700	342,798	341,692	343,440

TABLE 3. Years of potential life lost before age 65 due to sudden infant death syndrome, by year, race, and sex — United States, 1980-1983

*Sums of values in table may not equal totals and subtotals because of rounding.

SIDS - Continued

The male excess in YPLL due to SIDS per 1,000 live births (49% for whites, 23% for blacks, and 22% for other races) reflects the unexplained increased risk of death from SIDS in male infants (4). This may reflect the increased incidence in mortality and infectious disease morbidity in male infants (5). The largest percentage of excess in YPLL in male infants per 1,000 live births occurs in whites because the greatest relative risk of death from SIDS due to gender is in whites.

The rate of YPLL due to SIDS per 1,000 live births for blacks is 1.7 times that for whites. This is related, at least in part, to the increased incidence of low birthweight (6), teenage fertility (7), and lower socioeconomic conditions among blacks (8), because each of these risk factors independently increases the risk of death from SIDS (9-13). Closing the black-white gap depends in part on the reduction of these three risks.

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