

# HIV/AIDS

SURVEILLANCE

YEAR-END EDITION

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U.S. AIDS cases reported through December 1989

Issued January 1990

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## Contents

Figure 1. AIDS annual rates per 100,000 population .....	3
Figure 2. Adult/adolescent and pediatric AIDS cases.....	4
Figure 3. Pediatric AIDS cases.....	4
Figure 4. AIDS cases by quarter-year of report.....	5
Figure 5. AIDS cases by month of diagnosis, adjusted for reporting delays .....	5
Table 1. AIDS cases and annual rates per 100,000 population, by state.....	6
Table 2. AIDS cases and annual rates per 100,000 population, by metropolitan area with 500,000 or more population.....	7
Table 3. AIDS cases by age group, exposure category, sex, and year of report.....	9
Table 4. AIDS cases by age group, exposure category, and race/ethnicity .....	10
Table 5. Adult/adolescent AIDS cases by sex, exposure category, and race/ethnicity .....	11
Table 6. AIDS cases in adolescents and adults under age 25, by exposure category and year of report.....	12
Table 7. AIDS cases by age at diagnosis and exposure category .....	13
Table 8. AIDS cases by sex, age at diagnosis, and race/ethnicity .....	14
Table 9. AIDS cases and annual rates per 100,000 population, by race/ethnicity, age group, and sex .....	15
Table 10. AIDS cases by year of diagnosis and definition category .....	15
Table 11. AIDS-indicator diseases, by age group .....	16
Table 12. AIDS cases, case-fatality rates, and deaths, by half-year and age group.....	17
Table 13. AIDS deaths by race/ethnicity, age at death, and sex .....	18
Table 14. Adult/adolescent AIDS cases by single and multiple exposure categories .....	19
Figure 6. Results of investigations of AIDS cases with undetermined risk.....	20
Technical notes.....	21

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Acquired immunodeficiency syndrome (AIDS) is a life-threatening manifestation of infection with the human immunodeficiency virus (HIV).

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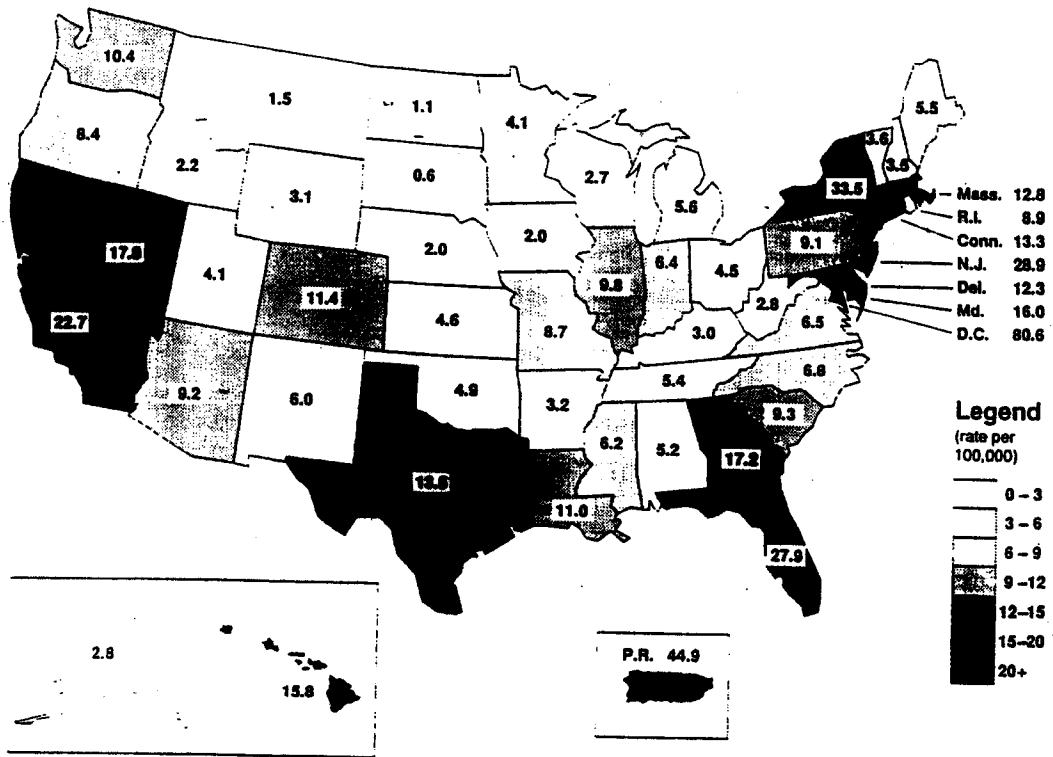
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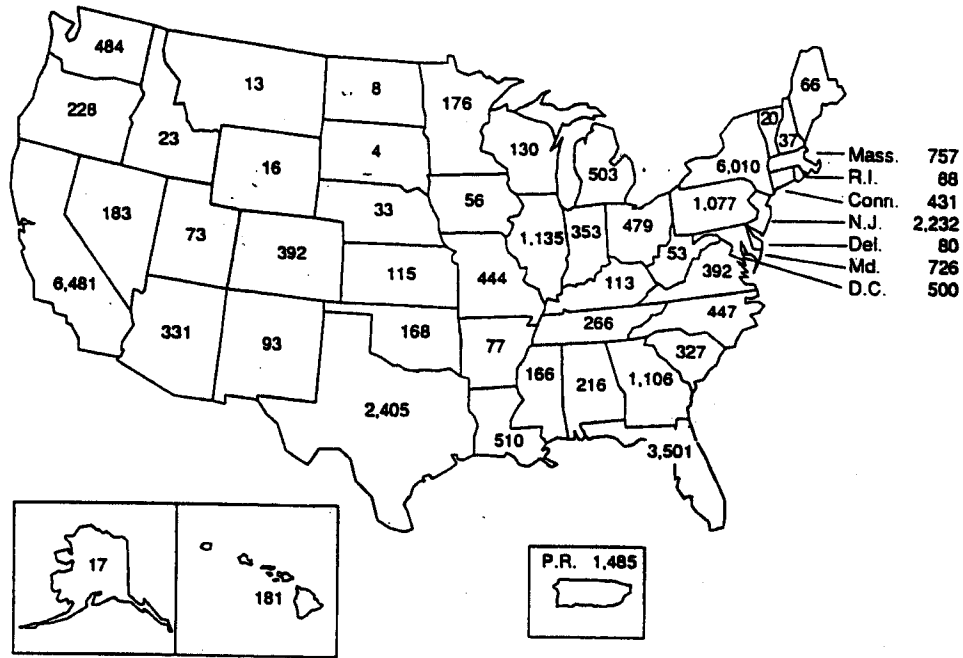
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Figure 1. AIDS annual rates per 100,000 population, for cases reported in 1989, United States



**Figure 2. Adult/adolescent and pediatric AIDS cases, reported in 1989, United States**



**Figure 3. Pediatric AIDS cases, reported in 1989, United States**

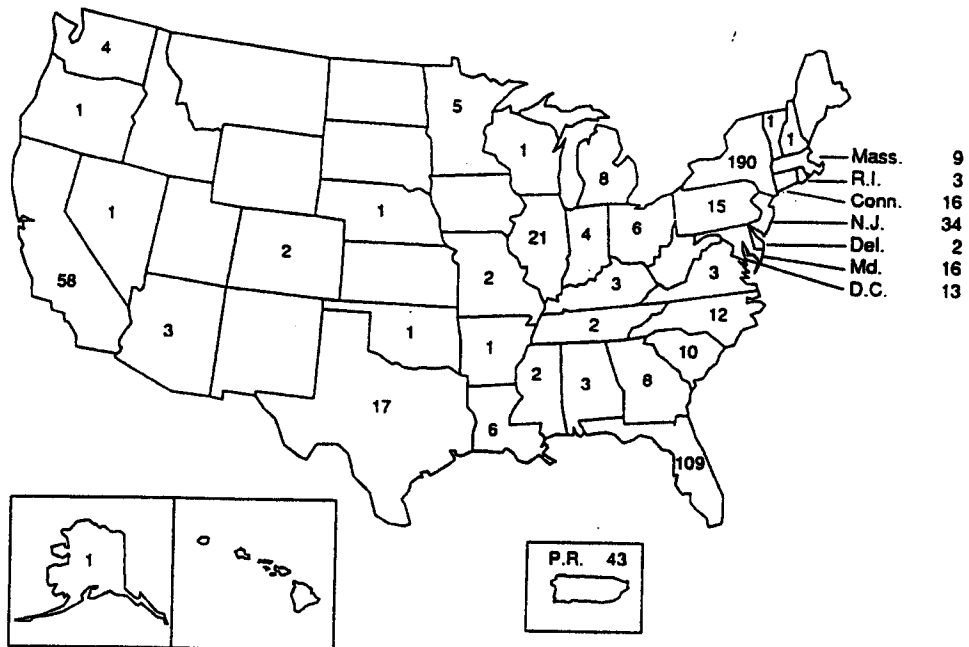


Figure 4. AIDS cases by quarter-year of report, reported January 1984 through December 1989, United States

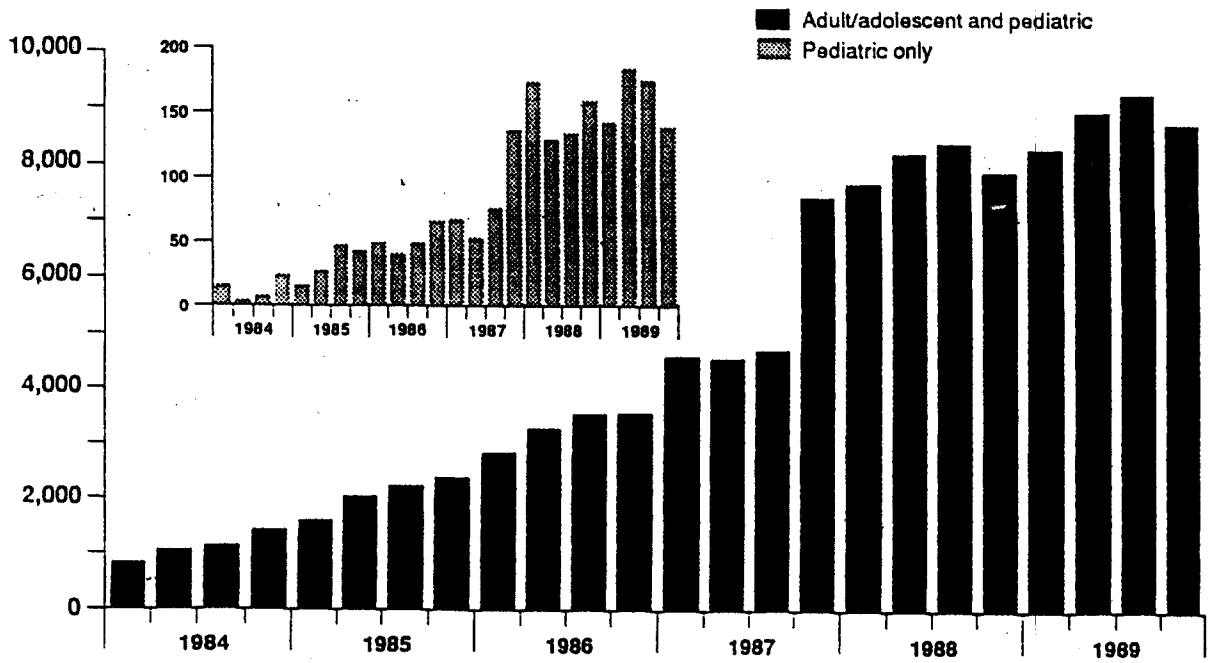
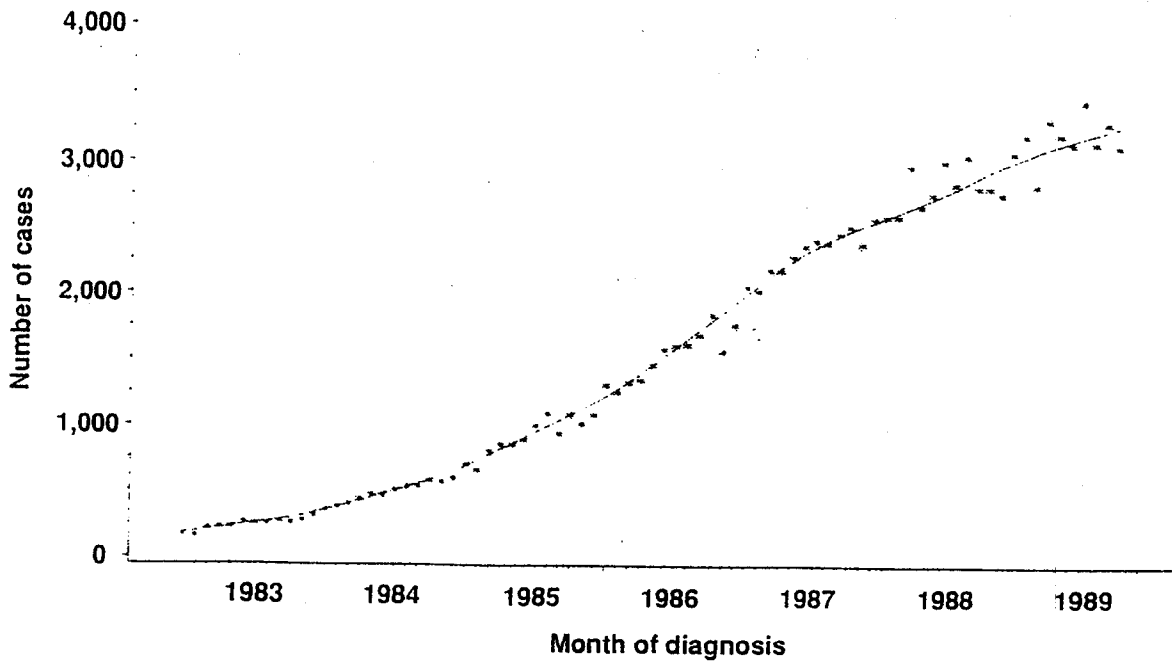


Figure 5. AIDS cases by month of diagnosis, adjusted for reporting delays,<sup>1</sup> January 1983 through September 1989, United States



<sup>1</sup> See technical notes for explanation of adjusting and smoothing of data. Adjusted numbers of diagnosed cases for the most recent 3 months are not shown because of the imprecision of these estimates.

**Table 1. AIDS cases and annual rates per 100,000 population, by state, reported in 1988 and 1989; and cumulative totals, by state and age group, through December 1989**

State of residence	1988		1989		Cumulative totals		
	No.	Rate	No.	Rate	Adults/ adolescents	Children 13 years old	Total
Alabama	213	5.2	216	5.2	639	16	655
Alaska	19	3.2	17	2.8	72	2	74
Arizona	279	8.0	331	9.2	980	6	986
Arkansas	80	3.3	77	3.2	243	3	246
California	5,770	20.6	6,481	22.7	23,102	163	23,265
Colorado	326	9.6	392	11.4	1,229	7	1,236
Connecticut	414	12.9	431	13.3	1,396	49	1,445
Delaware	62	9.7	80	12.3	216	4	220
District of Columbia	504	81.0	500	80.6	1,957	29	1,986
Florida	2,702	22.0	3,501	27.9	9,708	267	9,975
Georgia	838	13.3	1,106	17.2	3,015	36	3,051
Hawaii	105	9.3	181	15.8	474	2	476
Hawaii	11	1.1	23	2.2	49	2	51
Idaho	993	8.6	1,135	9.8	3,399	50	3,449
Illinois	80	1.5	353	6.4	685	7	692
Indiana	42	1.5	56	2.0	160	3	163
Iowa	89	3.6	115	4.6	305	3	308
Kentucky	91	2.4	113	3.0	309	5	314
Louisiana	403	8.8	510	11.0	1,568	23	1,591
Maine	27	2.3	66	5.5	152	2	154
Maryland	543	12.0	726	16.0	2,103	47	2,150
Massachusetts	710	12.1	757	12.8	2,461	41	2,502
Michigan	457	5.0	503	5.6	1,407	22	1,429
Minnesota	167	3.9	176	4.1	620	7	627
Mississippi	126	4.7	166	6.2	376	7	383
Missouri	411	8.0	444	8.7	1,243	10	1,253
Montana	16	1.9	13	1.5	39	—	39
Nebraska	51	3.2	33	2.0	127	1	128
Nevada	119	11.8	183	17.8	443	3	446
New Hampshire	38	3.6	37	3.5	124	4	128
New Jersey	2,457	31.9	2,232	28.9	7,703	215	7,918
New Mexico	59	3.8	93	6.0	237	1	238
New York	6,976	38.9	6,010	33.5	25,527	599	26,126
North Carolina	278	4.3	447	6.8	1,084	23	1,107
North Dakota	3	0.4	8	1.1	18	—	18
Ohio	507	4.7	479	4.5	1,606	24	1,630
Oklahoma	148	4.4	168	4.9	498	9	507
Oregon	178	6.5	228	8.4	681	3	684
Pennsylvania	856	7.3	1,077	9.1	3,194	55	3,249
Rhode Island	85	8.6	88	8.9	288	7	295
South Carolina	173	5.0	327	9.3	679	19	698
South Dakota	7	1.0	4	0.6	16	—	16
Tennessee	330	6.8	266	5.4	755	10	765
Texas	2,235	12.8	2,405	13.5	8,026	66	8,092
Utah	81	4.7	73	4.1	235	5	240
Vermont	11	2.0	20	3.6	55	1	56
Virginia	345	5.8	392	6.5	1,292	22	1,314
Washington	355	7.7	484	10.4	1,506	11	1,517
West Virginia	20	1.0	53	2.8	113	2	115
Wisconsin	112	2.3	130	2.7	415	2	417
Wyoming	6	1.2	16	3.1	28	—	28
<b>U.S. total</b>	<b>30,908</b>	<b>12.6</b>	<b>33,722</b>	<b>13.6</b>	<b>112,557</b>	<b>1,895</b>	<b>114,452</b>
Guam	1	0.8	2	1.5	7	—	7
Pacific Islands, U.S.	1	0.7	—	—	1	—	1
Puerto Rico	1,253	38.0	1,485	44.9	3,155	97	3,252
Virgin Islands, U.S.	33	29.2	29	25.2	66	3	69
<b>total</b>	<b>32,196</b>	<b>12.9</b>	<b>35,238</b>	<b>14.0</b>	<b>115,786</b>	<b>1,995</b>	<b>117,781</b>

**Table 2. AIDS cases and annual rates per 100,000 population, by metropolitan area with 500,000 or more population, reported in 1988 and 1989; and cumulative totals, by area and age group, through December 1989**

Metropolitan area of residence	1988		1989		Cumulative totals		
	No.	Rate	No.	Rate	Adults/ adolescents	Children <13 years old	Total
Akron, Ohio	27	-4.2	23	3.6	78	—	78
Albany-Schenectady, N.Y.	72	8.5	73	8.6	246	2	248
Allentown, Pa.	30	4.6	31	4.7	97	3	100
Anaheim, Calif.	237	10.6	286	12.6	923	7	930
Atlanta, Ga.	620	23.0	864	31.2	2,295	21	2,316
Austin, Tex.	108	13.4	205	24.5	484	4	488
Bakersfield, Calif.	20	3.8	37	6.8	80	—	80
Baltimore, Md.	313	13.7	466	20.3	1,187	33	1,220
Baton Rouge, La.	34	6.0	51	8.8	134	—	134
Bergen-Passaic, N.J.	296	22.7	205	15.7	961	24	985
Birmingham, Ala.	69	7.5	75	8.1	205	6	211
Boston, Mass.	570	15.2	586	15.6	1,950	33	1,983
Bridgeport, Conn.	116	13.9	133	15.9	411	14	425
Buffalo, N.Y.	46	4.8	69	7.3	173	—	173
Charleston, S.C.	41	8.0	65	12.4	155	—	155
Charlotte, N.C.	68	6.2	88	7.9	229	4	233
Chicago, Ill.	868	13.9	926	14.8	2,880	36	2,916
Cincinnati, Ohio	70	4.9	60	4.2	215	3	218
Cleveland, Ohio	129	7.0	126	6.9	438	5	443
Columbus, Ohio	121	9.2	111	8.4	360	3	363
Dallas, Tex.	545	21.5	539	20.7	1,973	7	1,980
Dayton, Ohio	46	4.9	56	6.0	164	3	167
Denver, Colo.	257	15.1	322	18.5	1,001	4	1,005
Detroit, Mich.	324	7.6	350	8.3	986	16	1,002
El Paso, Tex.	17	3.0	33	5.6	74	1	75
Fort Lauderdale, Fla.	361	30.4	603	49.9	1,591	23	1,614
Fort Worth, Tex.	123	9.2	152	11.0	427	4	431
Fresno, Calif.	40	6.4	50	7.9	130	1	131
Gary, Ind.	8	1.3	33	5.5	63	—	63
Grand Rapids, Mich.	21	3.2	27	4.0	70	1	71
Greensboro, N.C.	40	4.4	73	7.9	161	3	164
Greenville, S.C.	14	2.3	38	6.1	82	—	82
Harrisburg, Pa.	40	6.9	48	8.3	126	4	130
Hartford, Conn.	108	9.9	143	13.1	387	9	396
Honolulu, Hawaii	87	10.1	121	13.8	364	2	366
Houston, Tex.	914	26.8	892	25.5	3,405	27	3,432
Indianapolis, Ind.	39	3.2	171	13.9	307	2	309
Jacksonville, Fla.	162	18.2	196	21.6	490	11	501
Jersey City, N.J.	468	84.1	307	55.2	1,344	33	1,377
Kansas City, Mo.	244	15.9	241	15.6	693	3	696
Knoxville, Tenn.	28	4.6	23	3.8	81	—	81
Las Vegas, Nev.	87	14.4	126	20.2	314	3	317
Little Rock, Ark.	33	6.4	30	5.8	102	1	103
Los Angeles, Calif.	1,937	22.9	2,305	26.8	8,185	71	8,256
Louisville, Ky.	45	4.6	44	4.5	131	2	133
Memphis, Tenn.	103	10.7	85	8.8	244	4	248
Miami, Fla.	704	39.0	901	49.6	2,873	122	2,995
Middlesex, N.J.	204	21.2	187	19.3	629	20	649
Milwaukee, Wis.	66	4.8	71	5.2	237	1	238
Minneapolis-Saint Paul, Minn.	149	6.3	156	6.6	538	6	544
Monmouth-Ocean City, N.J.	141	14.5	181	18.4	455	16	471
Nashville, Tenn.	132	13.9	78	8.1	248	4	252
Nassau-Suffolk, N.Y.	355	13.3	370	13.8	1,240	37	1,277
New Haven, Conn.	147	18.7	111	14.0	431	26	457
New Orleans, La.	242	17.9	307	22.5	1,018	14	1,032
New York, N.Y.	5,977	69.8	4,937	57.5	22,125	540	22,665
Newark, N.J.	1,071	57.0	940	50.0	3,257	97	3,354
Norfolk, Va.	90	6.6	74	5.3	263	6	269
Oakland, Calif.	360	18.0	385	19.0	1,383	10	1,393
Oklahoma City, Okla.	29	2.8	19	1.8	147	—	147

**Table 2. AIDS cases and annual rates per 100,000 population, by metropolitan area with 500,000 or more population, reported in 1988 and 1989; and cumulative totals, by area and age group, through December 1989 — Continued**

Metropolitan area of residence	1988		1989		Cumulative totals		
	No.	Rate	No.	Rate	Adults/ adolescents	Children 13 years old	Total
Omaha, Neb.	36	5.7	24	3.8	90	—	90
Orlando, Fla.	182	18.8	161	16.1	477	5	482
Oxnard-Ventura, Calif.	42	6.6	31	4.7	108	—	108
Philadelphia, Pa.	637	13.2	781	16.1	2,419	36	2,455
Phoenix, Ariz.	222	10.7	238	11.1	715	4	719
Pittsburgh, Pa.	94	4.5	157	7.6	417	1	418
Portland, Oreg.	141	12.0	173	14.6	533	1	534
Providence, R.I.	80	8.9	81	9.0	267	6	273
Raleigh-Durham, N.C.	66	9.7	96	13.8	241	7	248
Richmond, Va.	59	7.2	93	11.2	255	1	256
Riverside-San Bernardino, Calif.	184	8.6	265	12.0	731	12	743
Rochester, N.Y.	97	9.8	64	6.5	267	1	268
Sacramento, Calif.	141	10.4	168	12.1	491	5	496
Saint Louis, Mo.	168	6.9	179	7.3	510	6	516
Salt Lake City, Utah	69	6.4	57	5.2	200	4	204
San Antonio, Tex.	236	17.8	193	14.2	559	8	567
San Diego, Calif.	445	19.3	503	21.4	1,621	14	1,635
San Francisco, Calif.	1,750	106.3	1,816	109.1	7,372	14	7,386
San Jose, Calif.	162	11.1	121	8.2	520	5	525
San Juan, P.R.	735	65.7	876	78.0	1,908	70	1,978
Scranton, Pa.	20	2.8	25	3.5	78	3	81
Seattle, Wash.	260	14.4	359	19.6	1,140	9	1,149
Springfield, Mass.	25	4.3	44	7.5	114	1	115
Syracuse, N.Y.	30	4.6	39	5.9	120	4	124
Tacoma, Wash.	24	4.4	36	6.5	98	1	99
Tampa, Fla.	404	20.1	392	19.1	1,124	20	1,144
Toledo, Ohio	25	4.1	23	3.8	75	1	76
Tucson, Ariz.	34	5.5	61	9.7	186	2	188
Tulsa, Okla.	48	6.3	49	6.3	141	2	143
Washington, D.C.	809	22.3	858	23.3	3,253	50	3,303
West Palm Beach, Fla.	302	37.5	340	40.8	1,027	42	1,069
Wilmington, Del.	52	9.3	64	11.4	176	3	179
Worcester, Mass.	44	6.6	40	6.0	123	3	126
<b>Metropolitan area subtotal<sup>1</sup></b>	<b>27,236</b>	<b>19.1</b>	<b>28,612</b>	<b>19.9</b>	<b>98,596</b>	<b>1,673</b>	<b>100,269</b>
<b>Non-metropolitan areas</b>	<b>4,960</b>	<b>4.6</b>	<b>6,626</b>	<b>6.1</b>	<b>17,190</b>	<b>322</b>	<b>17,512</b>
<b>Total</b>	<b>32,196</b>	<b>12.9</b>	<b>35,238</b>	<b>14.0</b>	<b>115,786</b>	<b>1,995</b>	<b>117,781</b>

<sup>1</sup> Includes data from all metropolitan areas which have populations of 50,000 or more.



**Table 3. AIDS cases by age group, exposure category, and sex, reported in 1988 and 1989; and cumulative totals, by age group and exposure category, through December 1989, United States**

Adult/adolescent exposure category	Males		Females		Totals		Cumulative total <sup>1</sup>	
	1988	1989	1988	1989	1988	1989	No.	(%)
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No.	(%)
Male homosexual/bisexual contact	18,130 (64)	19,652 (63)	—	—	18,130 (57)	19,652 (57)	70,093	(61)
Intravenous (IV) drug use (female and heterosexual male)	5,828 (21)	6,139 (20)	1,752 (53)	1,831 (50)	7,580 (24)	7,970 (23)	24,212	(21)
Male homosexual/bisexual contact and IV drug use	2,129 (8)	2,138 (7)	—	—	2,129 (7)	2,138 (6)	8,117	(7)
Hemophilia/coagulation disorder	295 (1)	286 (1)	5 (0)	9 (0)	300 (1)	295 (1)	1,062	(1)
Heterosexual contact:	605 (2)	782 (3)	998 (30)	1,172 (32)	1,603 (5)	1,954 (6)	5,630	(5)
Sex with IV drug user	240	388	654	733	894	1,121	2,871	
Sex with bisexual male	—	—	98	95	98	95	353	
Sex with person with hemophilia	1	2	11	20	12	22	52	
Born in Pattern-II <sup>2</sup> country	266	259	108	133	374	392	1,632	
Sex with person born in Pattern-II country	17	15	5	11	22	26	82	
Sex with transfusion recipient with HIV infection	8	11	19	20	27	31	81	
Sex with HIV-infected person, risk not specified	73	107	103	160	176	267	559	
Receipt of blood transfusion, blood components, or tissue <sup>3</sup>	524 (2)	467 (2)	345 (11)	301 (8)	869 (3)	768 (2)	2,830	(2)
Other/undetermined <sup>4</sup>	809 (3)	1,508 (5)	181 (6)	313 (9)	990 (3)	1,821 (5)	3,842	(3)
Adult/adolescent subtotal	28,320 (100)	30,972 (100)	3,281 (100)	3,626 (100)	31,601 (100)	34,598 (100)	115,786	(100)
<b>Pediatric (&lt;13 years old) exposure category</b>								
Hemophilia/coagulation disorder	39 (12)	25 (7)	—	1 (0)	39 (7)	26 (4)	106	(5)
Mother with/at risk for HIV infection:	237 (71)	273 (81)	231 (89)	274 (90)	468 (79)	547 (85)	1,614	(81)
IV drug use	126	134	120	115	246	249	826	
Sex with IV drug user	46	65	42	59	88	124	330	
Sex with bisexual male	4	6	6	6	10	12	37	
Sex with person with hemophilia	2	—	1	—	3	—	7	
Born in Pattern-II country	23	27	21	27	44	54	172	
Sex with person born in Pattern-II country	1	2	—	3	1	5	7	
Sex with transfusion recipient with HIV infection	2	1	3	4	5	5	10	
Sex with HIV-infected person, risk not specified	14	10	7	15	21	25	64	
Receipt of blood transfusion, blood components, or tissue	3	4	8	6	11	10	34	
Has HIV infection, risk not specified	16	24	23	39	39	63	127	
Receipt of blood transfusion, blood components, or tissue	47 (14)	25 (7)	19 (7)	15 (5)	66 (11)	40 (6)	212	(11)
Undetermined	11 (3)	12 (4)	11 (4)	15 (5)	22 (4)	27 (4)	63	(3)
Pediatric subtotal	334 (100)	335 (100)	261 (100)	305 (100)	595 (100)	640 (100)	1,995	(100)
<b>Total</b>	<b>28,654</b>	<b>31,307</b>	<b>3,542</b>	<b>3,931</b>	<b>32,196</b>	<b>35,238</b>	<b>117,781</b>	

<sup>1</sup> Includes 3 patients known to be infected with human immunodeficiency virus type 2 (HIV-2). See MMWR 1989;38:572-580.

<sup>2</sup> See technical notes.

<sup>3</sup> Includes 6 transfusion recipients who received blood screened for HIV antibody, and 1 tissue recipient.

<sup>4</sup> "Other" refers to 2 health-care workers who seroconverted to HIV and developed AIDS after occupational exposure to HIV-infected blood. "Undetermined" refers to patients whose mode of exposure to HIV is unknown. This includes patients under investigation; patients who died, were lost to follow-up, or refused interview; and patients whose mode of exposure to HIV remains undetermined after investigation. See Figure 6.

**Table 4. AIDS cases by age group, exposure category, and race/ethnicity, reported through December 1989, United States**

Adult/adolescent exposure category	White, not Hispanic	Black, not Hispanic	Hispanic	Asian/Pacific Islander	American Indian/Alaskan Native	Total <sup>4</sup>
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male homosexual/bisexual contact intravenous (IV) drug use (female and heterosexual male)	50,447 (77)	11,501 (37)	7,386 (42)	533 (74)	79 (52)	70,093 (61)
Male homosexual/bisexual contact and IV drug use	4,909 ( 7)	12,085 (39)	7,099 (40)	28 ( 4)	26 (17)	24,212 (21)
Hemophilia/coagulation disorder	4,794 ( 7)	2,118 ( 7)	1,162 ( 7)	12 ( 2)	21 (14)	8,117 ( 7)
Heterosexual contact:	886 ( 1)	71 ( 0)	80 ( 0)	15 ( 2)	6 ( 4)	1,062 ( 1)
<i>Sex with IV drug user</i>	1,135 ( 2)	3,503 (11)	943 ( 5)	27 ( 4)	9 ( 6)	5,630 ( 5)
<i>Sex with bisexual male</i>	634	1,454	762	11	4	2,871
<i>Sex with person with hemophilia</i>	183	117	46	5	1	353
<i>Born in Pattern-II<sup>1</sup> country</i>	47	3	1	1	—	52
<i>Sex with person born in Pattern-II country</i>	3	1,611	9	4	—	1,632
<i>Sex with transfusion recipient with HIV infection</i>	24	56	2	—	—	82
<i>Sex with HIV-infected person, risk not specified</i>	61	10	8	1	—	81
Receipt of blood transfusion, blood components, or tissue <sup>2</sup>	183	252	115	5	4	559
Other/undetermined <sup>3</sup>	2,050 ( 3)	449 ( 1)	266 ( 1)	56 ( 8)	3 ( 2)	2,830 ( 2)
Adult/adolescent subtotal	1,424 ( 2)	1,471 ( 5)	857 ( 5)	45 ( 6)	9 ( 6)	3,842 ( 3)
	65,645(100)	31,198 (100)	17,793(100)	716(100)	153(100)	115,786(100)
<b>Pediatric (&lt;13 years old) exposure category</b>						
Hemophilia/coagulation disorder	73 (17)	15 ( 1)	14 ( 3)	3 (33)	—	106 ( 5)
Mother with/at risk for HIV infection:	232 (53)	954 (91)	417 (85)	3 (33)	4(100)	1,614 (81)
<i>IV drug use</i>	114	483	225	1	2	826
<i>Sex with IV drug user</i>	47	153	129	—	—	330
<i>Sex with bisexual male</i>	13	17	7	—	—	37
<i>Sex with person with hemophilia</i>	5	1	1	—	—	7
<i>Born in Pattern-II country</i>	2	169	1	—	—	172
<i>Sex with person born in Pattern-II country</i>	—	6	—	—	—	7
<i>Sex with transfusion recipient with HIV infection</i>	5	3	2	—	—	10
<i>Sex with HIV-infected person, risk not specified</i>	10	28	23	1	1	64
Receipt of blood transfusion, blood components, or tissue	11	13	10	—	—	34
Has HIV infection, risk not specified	25	81	19	1	1	127
Receipt of blood transfusion, blood components, or tissue	119 (27)	46 ( 4)	44 ( 9)	3 (33)	—	212 (11)
Undetermined	12 ( 3)	35 ( 3)	16 ( 3)	—	—	63 ( 3)
Pediatric subtotal	436(100)	1,050 (100)	491(100)	9(100)	4(100)	1,995(100)
<b>Total</b>	<b>66,081</b>	<b>32,248</b>	<b>18,284</b>	<b>725</b>	<b>157</b>	<b>117,781</b>

<sup>1</sup> See technical notes.

<sup>2</sup> Includes 6 transfusion recipients who received blood screened for HIV antibody, and 1 tissue recipient.

<sup>3</sup> "Other" refers to 2 health-care workers who seroconverted to HIV and developed AIDS after occupational exposure to HIV-infected blood. "Undetermined" refers to patients whose mode of exposure to HIV is unknown. This includes patient under investigation; patients who died, were lost to follow-up, or refused interview; and patients whose mode of exposure to HIV remains undetermined after investigation. See Figure 6.

<sup>4</sup> Includes 286 persons whose race/ethnicity is unknown.

**Table 5. Adult/adolescent AIDS cases by sex, exposure category, and race/ethnicity, reported through December 1989, United States**

Male exposure category	White, not Hispanic	Black, not Hispanic	Hispanic	Asian/Pacific Islander	American Indian/Alaskan Native	Total <sup>4</sup>
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male homosexual/bisexual contact	50,447 (80)	11,501 (45)	7,386 (47)	533 (81)	79 (62)	70,093 (67)
Intravenous (IV) drug use (heterosexual)	3,734 (6)	8,914 (35)	5,989 (38)	17 (3)	12 (9)	18,721 (18)
Male homosexual/bisexual contact and IV drug use	4,794 (8)	2,118 (8)	1,162 (7)	12 (2)	21 (16)	8,117 (8)
Hemophilia/coagulation disorder	862 (1)	68 (0)	79 (1)	15 (2)	6 (5)	1,034 (1)
Heterosexual contact:	353 (1)	1,773 (7)	172 (1)	5 (1)	1 (1)	2,308 (2)
<i>Sex with IV drug user</i>	232	463	119	1	1	816
<i>Sex with person with hemophilia</i>	3	1	—	—	—	4
<i>Born in Pattern-II<sup>1</sup> country</i>	2	1,178	7	3	—	1,193
<i>Sex with person born in Pattern-II country</i>	23	24	2	—	—	49
<i>Sex with transfusion recipient with HIV infection</i>	14	6	1	—	—	22
<i>Sex with HIV-infected person, risk not specified</i>	79	101	43	1	—	224
Receipt of blood transfusion, blood components, or tissue <sup>2</sup>	1,341 (2)	239 (1)	148 (1)	34 (5)	1 (1)	1,768 (2)
Other/undetermined <sup>3</sup>	1,224 (2)	1,097 (4)	738 (5)	39 (6)	8 (6)	3,134 (3)
<b>Male subtotal</b>	<b>62,755 (100)</b>	<b>25,710 (100)</b>	<b>15,674 (100)</b>	<b>655 (100)</b>	<b>128 (100)</b>	<b>105,175 (100)</b>
<b>Female exposure category</b>						
IV drug use	1,175 (41)	3,171 (58)	1,110 (52)	11 (18)	14 (56)	5,491 (52)
Hemophilia/coagulation disorder	24 (1)	3 (0)	1 (0)	—	—	28 (0)
Heterosexual contact:	782 (27)	1,730 (32)	771 (36)	22 (36)	8 (32)	3,322 (31)
<i>Sex with IV drug user</i>	402	991	643	10	3	2,055
<i>Sex with bisexual male</i>	183	117	46	5	1	353
<i>Sex with person with hemophilia</i>	44	2	1	1	—	48
<i>Born in Pattern-II country</i>	1	433	2	1	—	439
<i>Sex with person born in Pattern-II country</i>	1	32	—	—	—	33
<i>Sex with transfusion recipient with HIV infection</i>	47	4	7	1	—	59
<i>Sex with HIV-infected person, risk not specified</i>	104	151	72	4	4	335
Receipt of blood transfusion, blood components, or tissue	709 (25)	210 (4)	118 (6)	22 (36)	2 (8)	1,062 (10)
Other/undetermined	200 (7)	374 (7)	119 (6)	6 (10)	1 (4)	708 (7)
<b>Female subtotal</b>	<b>2,890 (100)</b>	<b>5,488 (100)</b>	<b>2,119 (100)</b>	<b>61 (100)</b>	<b>25 (100)</b>	<b>10,611 (100)</b>
<b>Total</b>	<b>65,645</b>	<b>31,198</b>	<b>17,793</b>	<b>716</b>	<b>153</b>	<b>115,786</b>

<sup>1</sup> See technical notes.

<sup>2</sup> Includes 6 transfusion recipients who received blood screened for HIV antibody, and 1 tissue recipient.

<sup>3</sup> "Other" refers to 2 health-care workers who seroconverted to HIV and developed AIDS after occupational exposure to HIV-infected blood.

"Undetermined" refers to patients whose mode of exposure to HIV is unknown. This includes patients under investigation; patients who died, were lost to follow-up, or refused interview; and patients whose mode of exposure to HIV remains undetermined after investigation. See Figure 6.

<sup>4</sup> Includes 253 males and 28 females whose race/ethnicity is unknown.

**Table 6. AIDS cases in adolescents and adults under age 25, by exposure category, reported in 1988 and 1989, and cumulative totals through December 1989, United States**

Exposure category	13-19 years old			20-24 years old		
	1988	1989	Cumulative total	1988	1989	Cumulative total
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male homosexual/bisexual contact	34 (27)	33 (26)	136 (30)	820 (57)	772 (53)	2,962 (58)
Intravenous (IV) drug use (female and heterosexual male)	21 (17)	15 (12)	52 (11)	242 (17)	264 (18)	785 (15)
Male homosexual/bisexual contact and IV drug use	7 (6)	3 (2)	23 (5)	124 (9)	129 (9)	487 (10)
Hemophilia/coagulation disorder	36 (29)	40 (31)	140 (30)	46 (3)	33 (2)	134 (3)
Heterosexual contact:	13 (10)	17 (13)	50 (11)	113 (8)	158 (11)	439 (9)
<i>Sex with IV drug user</i>	7	15	31	67	90	231
<i>Sex with bisexual male</i>	—	1	3	14	10	42
<i>Sex with person with hemophilia</i>	—	—	—	1	8	12
<i>Born in Pattern-II<sup>1</sup> country</i>	3	—	11	10	19	90
<i>Sex with person born in     Pattern-II country</i>	—	—	—	—	2	5
<i>Sex with transfusion recipient     with HIV infection</i>	—	—	—	—	2	3
<i>Sex with HIV-infected     person, risk not specified</i>	3	1	5	21	27	56
Receipt of blood transfusion, blood components, or tissue	12 (10)	6 (5)	37 (8)	28 (2)	11 (1)	78 (2)
Undetermined <sup>2</sup>	1 (1)	13 (10)	23 (5)	57 (4)	89 (6)	205 (4)
<b>Total</b>	<b>124 (100)</b>	<b>127 (100)</b>	<b>461 (100)</b>	<b>1,430 (100)</b>	<b>1,456 (100)</b>	<b>5,090 (100)</b>

<sup>1</sup> See technical notes.

<sup>2</sup> "Undetermined" refers to patients whose mode of exposure to HIV is unknown. This includes patients under investigation; patients who died, were lost to follow-up, or refused interview; and patients whose mode of exposure to HIV remains undetermined after investigation. See Figure 6.

**Table 7. AIDS cases by age at diagnosis and exposure category, reported through December 1989, United States**

Age at diagnosis (years)	Male homosexual/bisexual contact		IV drug use (female and heterosexual male)		Male homosexual/bisexual contact and IV drug use		Hemophilia/coagulation disorder		Heterosexual contact: sex with person with/at risk for HIV infection	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Under 5	—		—		—		8	( 1)	—	
5-12	—		—		—		98	( 8)	—	
13-19	136	( 0)	52	( 0)	23	( 0)	140	(12)	39	( 1)
20-24	2,962	( 4)	785	( 3)	487	( 6)	134	(11)	349	( 9)
25-29	11,488	(16)	3,576	(15)	1,716	(21)	166	(14)	896	(22)
30-34	16,718	(24)	7,194	(30)	2,452	(30)	159	(14)	939	(23)
35-39	15,053	(21)	6,649	(27)	1,870	(23)	129	(11)	656	(16)
40-44	10,317	(15)	3,378	(14)	893	(11)	88	( 8)	404	(10)
45-49	6,211	( 9)	1,428	( 6)	403	( 5)	84	( 7)	257	( 6)
50-54	3,538	( 5)	673	( 3)	166	( 2)	40	( 3)	169	( 4)
55-59	2,187	( 3)	340	( 1)	72	( 1)	28	( 2)	124	( 3)
60-64	979	( 1)	103	( 0)	21	( 0)	41	( 4)	72	( 2)
65 or older	504	( 1)	34	( 0)	14	( 0)	53	( 5)	93	( 2)
<b>Total</b>	<b>70,093</b>	<b>(100)</b>	<b>24,212</b>	<b>(100)</b>	<b>8,117</b>	<b>(100)</b>	<b>1,168</b>	<b>(100)</b>	<b>3,998</b>	<b>(100)</b>

Age at diagnosis (years)	Heterosexual contact: born in Pattern-II <sup>1</sup> country		Receipt of transfusion <sup>2</sup>		Mother with/at risk for HIV infection		Other/undetermined <sup>3</sup>		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Under 5	—		115	( 4)	1,465	(91)	55	( 1)	1,643	( 1)
5-12	—		97	( 3)	149	( 9)	8	( 0)	352	( 0)
13-19	11	( 1)	37	( 1)	—		23	( 1)	461	( 0)
20-24	90	( 6)	78	( 3)	—		205	( 5)	5,090	( 4)
25-29	413	(25)	172	( 6)	—		539	(14)	18,966	(16)
30-34	495	(30)	209	( 7)	—		705	(18)	28,871	(25)
35-39	306	(19)	212	( 7)	—		588	(15)	25,463	(22)
40-44	158	(10)	213	( 7)	—		509	(13)	15,960	(14)
45-49	70	( 4)	175	( 6)	—		363	( 9)	8,991	( 8)
50-54	40	( 2)	217	( 7)	—		319	( 8)	5,162	( 4)
55-59	26	( 2)	271	( 9)	—		270	( 7)	3,318	( 3)
60-64	13	( 1)	384	(13)	—		173	( 4)	1,786	( 2)
65 or older	10	( 1)	862	(28)	—		148	( 4)	1,718	( 1)
<b>Total</b>	<b>1,632</b>	<b>(100)</b>	<b>3,042</b>	<b>(100)</b>	<b>1,614</b>	<b>(100)</b>	<b>3,905</b>	<b>(100)</b>	<b>117,781</b>	<b>(100)</b>

<sup>1</sup> See technical notes.

<sup>2</sup> Includes 6 transfusion recipients who received blood screened for HIV antibody, and 1 tissue recipient.

<sup>3</sup> "Other" refers to 2 health-care workers who seroconverted to HIV and developed AIDS after occupational exposure to HIV-infected blood. "Undetermined" refers to patients whose mode of exposure to HIV is unknown. This includes patients under investigation; patients who died, were lost to follow-up, or refused interview; and patients whose mode of exposure to HIV remains undetermined after investigation. See Figure 6.

**Table 8. AIDS cases by sex, age at diagnosis, and race/ethnicity, reported through December 1989, United States**

Males Age at diagnosis (years)	White, not Hispanic	Black, not Hispanic	Hispanic	Asian/Pacific Islander	American Indian/ Alaskan Native	Total <sup>1</sup>
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Under 5	149 (0)	465 (2)	229 (1)	3 (0)	2 (2)	850 (1)
5-12	122 (0)	65 (0)	40 (0)	3 (0)	—	232 (0)
13-19	181 (0)	109 (0)	68 (0)	5 (1)	3 (2)	367 (0)
20-24	2,277 (4)	1,268 (5)	758 (5)	26 (4)	9 (7)	4,346 (4)
25-29	9,573 (15)	4,297 (16)	2,728 (17)	92 (14)	24 (18)	16,744 (16)
30-34	14,877 (24)	6,676 (25)	4,141 (26)	139 (21)	33 (25)	25,927 (24)
35-39	13,767 (22)	5,967 (23)	3,460 (22)	146 (22)	23 (18)	23,422 (22)
40-44	9,308 (15)	3,335 (13)	2,155 (14)	99 (15)	16 (12)	14,957 (14)
45-49	5,518 (9)	1,846 (7)	1,071 (7)	67 (10)	11 (8)	8,531 (8)
50-54	3,133 (5)	1,069 (4)	621 (4)	35 (5)	3 (2)	4,874 (5)
55-59	2,009 (3)	639 (2)	401 (3)	21 (3)	4 (3)	3,085 (3)
60-64	1,099 (2)	320 (1)	163 (1)	7 (1)	2 (2)	1,596 (2)
65 or older	1,013 (2)	184 (1)	108 (1)	18 (3)	—	1,326 (1)
Male subtotal	63,026 (100)	26,240 (100)	15,943 (100)	661 (100)	130 (100)	106,257 (100)
<b>Females</b>						
<b>Age at diagnosis (years)</b>						
Under 5	138 (5)	459 (8)	192 (8)	1 (2)	2 (7)	793 (7)
5-12	27 (1)	61 (1)	30 (1)	2 (3)	—	120 (1)
13-19	19 (1)	56 (1)	17 (1)	1 (2)	1 (4)	94 (1)
20-24	214 (7)	340 (6)	182 (8)	3 (5)	1 (4)	744 (6)
25-29	559 (18)	1,127 (19)	517 (22)	6 (9)	5 (19)	2,222 (19)
30-34	661 (22)	1,677 (28)	575 (25)	15 (23)	9 (33)	2,944 (26)
35-39	437 (14)	1,174 (20)	415 (18)	6 (9)	4 (15)	2,041 (18)
40-44	239 (8)	544 (9)	206 (9)	12 (19)	2 (7)	1,003 (9)
45-49	123 (4)	236 (4)	92 (4)	6 (9)	—	460 (4)
50-54	106 (3)	136 (2)	41 (2)	4 (6)	1 (4)	288 (2)
55-59	115 (4)	83 (1)	33 (1)	1 (2)	—	233 (2)
60-64	116 (4)	51 (1)	18 (1)	4 (6)	1 (4)	190 (2)
65 or older	301 (10)	64 (1)	23 (1)	3 (5)	1 (4)	392 (3)
Female subtotal	3,055 (100)	6,008 (100)	2,341 (100)	64 (100)	27 (100)	11,524 (100)
<b>Total</b>	<b>66,081</b>	<b>32,248</b>	<b>18,284</b>	<b>725</b>	<b>157</b>	<b>117,781</b>

<sup>1</sup> Includes 286 persons whose race/ethnicity is unknown.

**Table 9. AIDS cases and annual rates<sup>1</sup> per 100,000 population, by race/ethnicity, age group, and sex, reported in 1989, United States**

Race/ethnicity	Adults/adolescents						Children < 13 years old		Total	
	Males		Females		Total		No.	Rate	No.	Rate
	No.	Rate	No.	Rate	No.	Rate				
White, not Hispanic	17,631	23.3	949	1.2	18,580	11.8	109	0.3	18,689	9.8
Black, not Hispanic	8,096	77.4	1,882	15.6	9,978	44.4	338	4.6	10,316	34.7
Hispanic	4,878	61.0	751	9.2	5,629	34.9	184	3.1	5,813	26.3
Asian/Pacific Islander	208	11.6	18	0.9	226	6.1	2	0.2	228	1.0
American Indian/Alaskan Native	48	6.6	11	1.4	59	3.9	2	0.5	61	3.1
<b>Total<sup>2</sup></b>	<b>30,972</b>	<b>32.0</b>	<b>3,626</b>	<b>3.5</b>	<b>34,598</b>	<b>17.2</b>	<b>640</b>	<b>1.3</b>	<b>35,238</b>	<b>14.2</b>

<sup>1</sup> Race/ethnicity annual rates are calculated using 1988 census estimates. See technical notes.

<sup>2</sup> Includes 130 persons whose race/ethnicity is unknown.

**Table 10. AIDS cases by year of diagnosis and definition category, diagnosed through December 1989, United States**

Definition category <sup>1</sup>	Year of diagnosis					Cumulative total No. (%)
	Before 1986	1986	1987	1988	1989	
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Pre-1987 definition	20,636 (97)	16,004 (90)	21,017 (81)	21,099 (71)	15,560 (68)	94,316 (80)
1987 definition: <sup>2</sup>	719 (3)	1,773 (10)	4,970 (19)	8,662 (29)	7,341 (32)	23,465 (20)
<i>Specific disease</i>						
<i>presumptively diagnosed</i>	376	949	2,663	4,851	4,164	13,003
<i>Specific disease</i>						
<i>definitively diagnosed</i>	151	261	472	601	498	1,983
<i>HIV encephalopathy</i>	56	173	660	1,048	805	2,742
<i>HIV wasting syndrome</i>	136	390	1,175	2,162	1,874	5,737
<b>Total</b>	<b>21,355 (100)</b>	<b>17,777 (100)</b>	<b>25,987 (100)</b>	<b>29,761 (100)</b>	<b>22,901 (100)</b>	<b>117,781 (100)</b>

<sup>1</sup> Persons who meet the criteria for more than one definition category are classified in the definition category listed first.

<sup>2</sup> Persons who meet only the 1987 AIDS case definition and whose date of diagnosis is before September 1987 were diagnosed retrospectively.

**Table 11. AIDS-indicator diseases diagnosed in patients reported in 1989, by age group, United States**

AIDS-indicator disease	Adults/adolescents		Children < 13 years old	
	No.	(%) <sup>1</sup>	No.	(%) <sup>1</sup>
Bacterial infections, multiple or recurrent		NA <sup>2</sup>	129	(20)
Candidiasis of bronchi, trachea, or lungs	997	( 3)	38	( 6)
Candidiasis of esophagus				
Definitive diagnosis	2,721	( 8)	38	( 6)
Presumptive diagnosis	1,886	( 5)	34	( 5)
Coccidioidomycosis, disseminated or extrapulmonary	77	( 0)	0	( 0)
Cryptococcosis, extrapulmonary	1,927	( 6)	5	( 1)
Cryptosporidiosis, causing chronic diarrhea	534	( 2)	22	( 3)
Cytomegalovirus disease other than retinitis	1,177	( 3)	45	( 7)
Cytomegalovirus retinitis				
Definitive diagnosis	436	( 1)	3	( 0)
Presumptive diagnosis	358	( 1)	4	( 1)
HIV encephalopathy (dementia)	2,232	( 6)	74	(12)
Herpes simplex, with esophagitis, pneumonitis, or chronic mucocutaneous ulcers	1,259	( 4)	19	( 3)
Histoplasmosis, disseminated or extrapulmonary	353	( 1)	6	( 1)
Isosporiasis, causing chronic diarrhea	76	( 0)	0	( 0)
Kaposi's sarcoma				
Definitive diagnosis	3,095	( 9)	2	( 0)
Presumptive diagnosis	562	( 2)	0	( 0)
Lymphoid interstitial pneumonia/pneumonitis		NA <sup>2</sup>		
Definitive diagnosis			72	(11)
Presumptive diagnosis			82	(13)
Lymphoma, Burkitt's or equivalent term	193	( 1)	6	( 1)
Lymphoma, immunoblastic, large cell, or equivalent term	755	( 2)	3	( 0)
Lymphoma, primary in brain	150	( 0)	1	( 0)
<i>Mycobacterium avium</i> or <i>M. kansasii</i> , disseminated				
Definitive diagnosis	1,243	( 4)	17	( 3)
Presumptive diagnosis	105	( 0)	0	( 0)
<i>M. tuberculosis</i> , extrapulmonary				
Definitive diagnosis	812	( 2)	0	( 0)
Presumptive diagnosis	108	( 0)	0	( 0)
Mycobacterial disease, other, disseminated				
Definitive diagnosis	379	( 1)	4	( 1)
Presumptive diagnosis	123	( 0)	0	( 0)
<i>Pneumocystis carinii</i> pneumonia				
Definitive diagnosis	13,543	(39)	168	(26)
Presumptive diagnosis	4,745	(14)	62	(10)
Progressive multifocal leukoencephalopathy	224	( 1)	4	( 1)
Salmonella septicemia, recurrent	134	( 0)		NA <sup>3</sup>
Toxoplasmosis of brain				
Definitive diagnosis	560	( 2)	5	( 1)
Presumptive diagnosis	913	( 3)	4	( 1)
HIV wasting syndrome	6,432	(19)	105	(16)
<b>Total</b>		<b>48,109</b>		<b>952</b>

<sup>1</sup> The sum of percentages is greater than 100 percent, because some patients have more than one disease.

<sup>2</sup> Not applicable as indicator of AIDS in adults/adolescents.

<sup>3</sup> Tabulated above in "Bacterial infections, multiple or recurrent."



**Table 12. AIDS cases, case-fatality rates, and deaths, by half-year and age group, through December 1989, United States<sup>1</sup>**

Half-year	Adults/adolescents			Children < 13 years old		
	Cases diagnosed during interval	Case-fatality rate	Deaths occurring during interval <sup>2</sup>	Cases diagnosed during interval	Case-fatality rate	Deaths occurring during interval <sup>2</sup>
Before 1981	78	82.1	30	6	66.7	1
1981 Jan.-June	91	90.1	38	8	62.5	2
July-Dec.	194	91.8	83	5	100.0	3
1982 Jan.-June	385	90.6	151	13	76.9	9
July-Dec.	664	89.3	276	14	78.6	4
1983 Jan.-June	1,249	91.5	507	33	93.9	13
July-Dec.	1,611	91.3	902	40	70.0	16
1984 Jan.-June	2,515	87.8	1,362	47	83.0	24
July-Dec.	3,303	88.6	1,895	61	73.8	23
1985 Jan.-June	4,722	87.5	2,695	97	71.1	43
July-Dec.	6,092	85.6	3,667	127	74.0	68
1986 Jan.-June	7,956	82.6	4,811	131	71.0	64
July-Dec.	9,528	77.9	6,089	162	65.4	82
1987 Jan.-June	12,157	73.6	7,035	205	59.0	110
July-Dec.	13,386	62.8	7,351	239	54.0	150
1988 Jan.-June	14,704	51.8	8,439	210	44.3	120
July-Dec.	14,581	42.2	9,401	266	36.8	141
1989 Jan.-June	14,626	29.4	8,793	233	35.2	132
July-Dec.	7,944	18.3	5,551	98	17.3	68
<b>Total<sup>2</sup></b>	<b>115,786</b>	<b>59.8</b>	<b>69,233</b>	<b>1,995</b>	<b>54.1</b>	<b>1,080</b>

<sup>1</sup> Reporting of diagnosed AIDS cases and deaths in more recent time periods is incomplete. See technical notes.

<sup>2</sup> Death totals include 157 adults/adolescents and 4 children known to have died, but whose date of death is unknown.

**Table 13. AIDS deaths by race/ethnicity, age at death, and sex, occurring in 1987 and 1988, and cumulative totals reported through December 1989, United States<sup>1</sup>**

Race/ethnicity and age at death <sup>2</sup>	Males			Females			Both Sexes		
	1987	1988	Cumulative total	1987	1988	Cumulative total	1987	1988	Cumulative total
<b>White, not Hispanic</b>									
Under 15	47	44	171	23	27	105	70	71	276
15-24	232	229	973	19	27	93	251	256	1,066
25-34	2,668	3,020	12,708	135	176	646	2,803	3,196	13,354
35-44	2,784	3,542	14,310	99	124	378	2,883	3,666	14,688
45-54	1,178	1,527	6,048	38	39	154	1,216	1,566	6,202
55 or older	732	813	3,242	113	121	429	845	934	3,671
All ages	7,641	9,175	37,521	427	514	1,812	8,068	9,689	39,333
<b>Black, not Hispanic</b>									
Under 15	59	63	266	62	69	279	121	132	545
15-24	151	181	684	51	57	198	202	238	882
25-34	1,375	1,646	6,498	342	448	1,637	1,717	2,094	8,135
35-44	1,222	1,603	5,835	233	313	1,015	1,455	1,916	6,850
45-54	412	532	1,937	55	70	233	467	602	2,170
55 or older	191	251	847	34	43	138	225	294	985
All ages	3,410	4,276	16,107	777	1,000	3,514	4,187	5,276	19,621
<b>Hispanic</b>									
Under 15	43	34	143	26	24	112	69	58	255
15-24	89	101	392	14	26	86	103	127	478
25-34	805	1,021	3,828	118	179	580	923	1,200	4,408
35-44	731	949	3,432	57	122	346	788	1,071	3,778
45-54	238	323	1,169	21	32	90	259	355	1,259
55 or older	112	134	479	9	12	52	121	146	531
All ages	2,018	2,562	9,464	245	395	1,272	2,263	2,957	10,736
<b>Asian/Pacific Islander</b>									
Under 15	1	2	6	—	1	2	1	3	8
15-24	4	3	14	1	1	2	5	4	16
25-34	23	35	111	1	3	12	24	38	123
35-44	26	42	139	2	4	11	28	46	150
45-54	16	15	69	—	3	5	16	18	74
55 or older	8	8	35	2	4	7	10	12	42
All ages	78	105	376	6	16	40	84	121	416
<b>American Indian/Alaskan Native</b>									
Under 15	1	—	2	1	—	1	2	—	3
15-24	1	3	6	—	—	—	1	3	6
25-34	7	6	28	1	1	8	8	7	36
35-44	6	5	24	—	—	3	6	5	27
45-54	2	3	11	—	—	1	2	3	12
55 or older	3	2	5	1	—	1	4	2	6
All ages	20	19	77	3	1	14	23	20	91
<b>All racial/ethnic groups</b>									
Under 15	151	143	588	112	121	500	263	264	1,088
15-24	480	519	2,077	85	111	380	565	630	2,457
25-34	4,882	5,735	23,198	597	808	2,888	5,479	6,543	26,086
35-44	4,779	6,157	23,787	391	563	1,754	5,170	6,720	25,541
45-54	1,849	2,408	9,248	114	144	484	1,963	2,552	9,732
55 or older	1,047	1,212	4,620	159	180	628	1,206	1,392	5,248
All ages	13,188	16,174	63,651	1,458	1,927	6,662	14,646	18,101	70,313

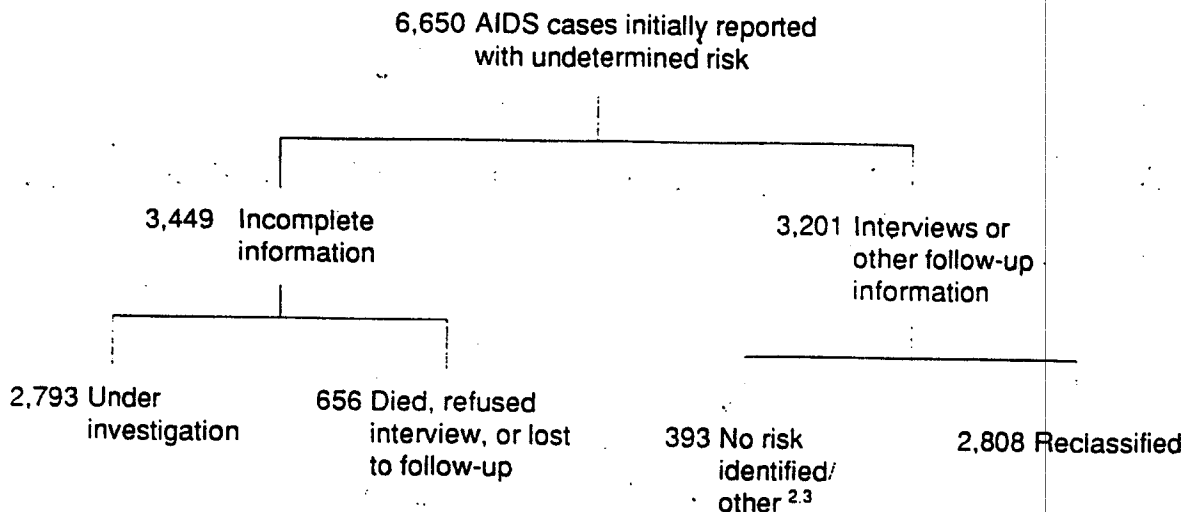
<sup>1</sup> Data tabulations for 1987 and 1988 are based on date of death occurrence. Data for deaths occurring in 1989 are incomplete and not tabulated separately, but are included in the cumulative totals. Tabulations for 1987 and 1988 may increase as additional deaths are reported to CDC.

<sup>2</sup> Data tabulated under "All ages" include 161 persons whose age at death is unknown. Data tabulated under "All racial/ethnic groups" include 116 persons whose race/ethnicity is unknown.

**Table 14. Adult/adolescent AIDS cases by single and multiple exposure categories, reported through December 1989, United States**

Exposure category	AIDS cases	
	No.	( %)
<b>Single mode of exposure</b>		
Male homosexual/bisexual contact	67,273	(58)
Intravenous (IV) drug use (female and heterosexual male)	20,659	(18)
Hemophilia/coagulation disorder	634	(1)
Heterosexual contact	5,353	(5)
Receipt of blood transfusion, blood component, or tissue	2,830	(2)
Other/undetermined	3,842	(3)
<b>Single mode of exposure subtotal</b>	<b>100,591</b>	<b>(87)</b>
<b>Multiple modes of exposure</b>		
Male homosexual/bisexual contact:IV drug use	7,332	(6)
Male homosexual/bisexual contact:hemophilia	28	(0)
Male homosexual/bisexual contact:heterosexual contact	1,349	(1)
Male homosexual/bisexual contact:receipt of transfusion	1,351	(1)
IV drug use:hemophilia	29	(0)
IV drug use:heterosexual contact	2,758	(2)
IV drug use:receipt of transfusion	580	(1)
Hemophilia:heterosexual contact	5	(0)
Hemophilia:receipt of transfusion	416	(0)
Heterosexual contact:receipt of transfusion	277	(0)
Male homosexual/bisexual contact:IV drug use:hemophilia	12	(0)
Male homosexual/bisexual contact:IV drug use:heterosexual contact	522	(0)
Male homosexual/bisexual contact:IV drug use:receipt of transfusion	220	(0)
Male homosexual/bisexual contact:hemophilia:heterosexual contact	1	(0)
Male homosexual/bisexual contact:hemophilia:receipt of transfusion	19	(0)
Male homosexual/bisexual contact:heterosexual contact:receipt of transfusion	72	(0)
IV drug use:hemophilia:heterosexual contact	3	(0)
IV drug use:hemophilia:receipt of transfusion	16	(0)
IV drug use:heterosexual contact:receipt of transfusion	162	(0)
Hemophilia:heterosexual contact:receipt of transfusion	7	(0)
Male homosexual/bisexual contact:IV drug use:hemophilia:receipt of transfusion	6	(0)
Male homosexual/bisexual contact:IV drug use:heterosexual contact:receipt of transfusion	25	(0)
IV drug use:hemophilia:heterosexual contact:receipt of transfusion	5	(0)
<b>Multiple modes of exposure subtotal</b>	<b>15,195</b>	<b>(13)</b>
<b>Total</b>	<b>115,786</b>	<b>(100)</b>

**Figure 6. Results of investigations of adult/adolescent AIDS cases with undetermined risk, reported through December 1989<sup>1</sup>**



<sup>1</sup> Excludes 63 children under 13 years of age who have an undetermined risk: 55 children are under investigation and 8 have died, refused interview, or were lost to follow-up. An additional 60 children who were initially reported with an undetermined risk have been reclassified after investigation.

<sup>2</sup> **Health-care workers.** 2 of the 393 adults/adolescents are classified as "other" and are health-care workers who seroconverted to HIV and developed AIDS after occupational exposure to HIV-infected blood. For the remaining 391, the mode of exposure to HIV remains undetermined after investigation. 66 of these are health-care workers. 57 of whom responded to a standardized questionnaire. 32 (56%) reported needlesticks and/or mucous membrane exposures to blood and other body fluids of patients. 1 of the patients was known to be infected with HIV at the time of the exposure and none of the health-care workers was evaluated at the time of the exposure to document seroconversion to HIV antibody. See *MMWR*, "Update: Acquired Immunodeficiency Syndrome and Human Immunodeficiency Virus Infection Among Health-Care Workers." (April 22, 1988)37:229-234,239.

<sup>3</sup> **Heterosexual transmission.** 326 of the 389 patients who had no risk identified after follow-up responded to a standardized questionnaire: 107 (37%) of 290 persons responding to questions related to sexually transmitted disease gave a history of such disease and 69 (34%) of 204 interviewed men reported sexual contact with a prostitute. Some of these persons may represent unreported or unrecognized heterosexual transmission of HIV. See *MMWR*, "Update: Heterosexual Transmission of AIDS and HIV Infection — U.S.," (June 23, 1989) 38:423-424,429-434.

# Technical notes

## Surveillance and reporting of AIDS

All 50 states, the District of Columbia, U.S. dependencies and possessions, and independent nations in free association with the U.S.<sup>1</sup> report AIDS cases to CDC using a uniform case definition and case report form. The original definition was modified in 1985 (*MMWR* 1985;34:373-5) and again in 1987 (*MMWR* 1987;36 [suppl. no. 1S]:1S-15S). The revisions incorporated a broader range of AIDS-indicator diseases and conditions and used human immunodeficiency virus (HIV) diagnostic tests to improve the sensitivity and specificity of the definition. For persons with laboratory-confirmed HIV infection, the 1987 revision incorporated HIV encephalopathy, wasting syndrome, and other indicator diseases that are diagnosed presumptively (i.e., without confirmatory laboratory evidence of the opportunistic disease). AIDS cases that meet the criteria of both the pre-1987 and 1987 definitions are classified in the pre-1987 definition category. Compared with patients who meet the pre-1987 case definition, a higher proportion of patients who meet only the 1987 case definition were female, black, or Hispanic, or were intravenous drug users (*MMWR* 1989;38:229-36).

Each issue of this update includes information received by CDC through the last day of the previous month. Data are tabulated by date of report to CDC unless otherwise noted. Data for U.S. dependencies and possessions and for associated independent nations are included in the totals.

Age group tabulations are based on the person's age at diagnosis of AIDS: adult/adolescent cases include persons 13 years of age and older; pediatric cases include children under 13 years of age. Age group tabulations in Table 13 (only included in the year-end edition) are based on age at death.

Metropolitan areas are defined as the Metropolitan Statistical Areas (MSA) for all areas except the 6 New England states. For these states, the New

<sup>1</sup>Included among the dependencies, possessions, and independent nations are Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, the Republic of Palau, the Republic of the Marshall Islands, the Commonwealth of the Northern Mariana Islands, and the Federated States of Micronesia. The latter 5 comprise the category "Pacific Islands, U.S." listed in Table 1.

England County Metropolitan Areas (NECMA) are used. Metropolitan areas are named for a central city in the MSA or NECMA, may include several counties, and may cross state boundaries. For example, AIDS cases and annual rates presented for the District of Columbia in Table 1 include only persons residing within the geographic boundaries of the District. AIDS cases and annual rates for Washington, D.C., in Table 2 include persons residing within several counties in the metropolitan area. State or metropolitan area data tabulations are based on the person's residence at diagnosis of the first AIDS-indicator disease(s).

Data in this report are provisional. Fifty percent of patients are reported to CDC within 3 months of diagnosis. However, reporting delays vary widely and have been as long as several years for some cases. The median delay in reporting appears to have increased, from about 2 months in 1982 to about 3 months in 1988; however, recent analyses suggests that reporting delay may be decreasing.

Completeness of reporting of diagnosed cases to state and local health departments varies by geographic region and patient population; however, mortality studies suggest that 70 to 90 percent of HIV-related deaths in men 25 to 44 years old are identified through national surveillance of AIDS (*MMWR* 1989;38:561-3). In addition, multiple routes of exposure, opportunistic diseases diagnosed after the initial case report was submitted to CDC, and vital status may not be determined or reported for all cases. Caution should be used in interpreting case-fatality rates because reporting of deaths is known to be incomplete.

## Exposure categories

For surveillance purposes, AIDS cases are counted only once in a hierarchy of exposure categories. Persons with more than one reported mode of exposure to HIV are classified in the exposure category listed first in the hierarchy, except for persons with a history of both homosexual/bisexual contact and intravenous drug use. They make up a separate exposure category.

"Heterosexual contact" cases include persons who report either specific heterosexual contact with a person with, or at increased risk for, HIV infection

(e.g., an intravenous drug user), or persons presumed to have acquired HIV infection through heterosexual contact because they were born in countries with a distinctive pattern of transmission termed "Pattern II" by the World Health Organization (*MMWR* 1988;37:286-8.293-5). Pattern II transmission is observed in areas of central, eastern, and southern Africa and in some Caribbean countries. In these countries, most of the reported cases occur in heterosexuals and the male-to-female ratio is approximately 1:1. Intravenous drug use and homosexual transmission either do not occur or occur at a low level.

"Undetermined" cases are in persons with no reported history of exposure to HIV through any of the routes listed in the hierarchy of exposure categories. Undetermined cases include persons who are currently under investigation by local health department officials; persons whose exposure history is incomplete because of death, refusal to be interviewed, or loss to follow-up; and persons who were interviewed or for whom other follow-up information was available and no exposure mode was identified. Persons who have an exposure mode identified at the time of follow-up are reclassified into the appropriate exposure category.

## Rates

Rates are on an annual basis per 100,000 population. The denominator for computing the rates is based on population estimates derived from 1980 census data and post-census population estimates. Each 12-month rate is the number of cases for a 12-month period divided by the estimated midyear 1988 or 1989 population multiplied by 100,000.

The denominators for computing race-specific rates (Table 9, included only in the year-end edition) are based on 1988 census estimates, the latest which contain racial breakdowns. Race-specific rates are the number of cases reported for a particular race/ethnicity during the preceding 12-month period, divided by the 1988 census population for that race/ethnicity, multiplied by 100,000.

Case-fatality rates are on a semiannual basis by date of diagnosis. Each 6-month case-fatality rate is the sum of fatal cases reported, divided by the number of total cases diagnosed in that period.

## Trends in AIDS incidence

Tabulations of AIDS cases by date of report give a general description of AIDS cases, but analyses by date of diagnosis give a more accurate description of trends. Delays in reporting, however, can have a substantial impact on tabulated numbers of cases diagnosed in recent time periods. About half of all cases are reported within 3 months of diagnosis, but about 15% are reported more than 1 year after diagnosis. Delays are substantially longer for pediatric cases and for transfusion-associated cases in adults.

Figure 5 (included only in the year-end report) shows trends in AIDS incidence by month of diagnosis. The points on the plot show the estimated numbers of cases diagnosed, after adjusting for estimated reporting delays. The smooth curve is computed using the Lowess procedure (J.M. Chamber, W.S. Cleveland, B. Kleiner, and P.A. Tukey. *Graphical Methods for Data Analysis*. Duxbury Press, Boston, 1983, Chapter 4).

Reporting delays were estimated by a maximum likelihood statistical procedure for each HIV exposure category (J.M. Karon, O.J. Devine, and W.M. Morgan "Predicting AIDS incidence by extrapolating from recent trends." In: C. Castillo-Chavex, ed. *Mathematical and Statistical Approaches to AIDS Epidemiology. Lecture Notes in Biomathematics*, vol. 83, Springer Verlag, Berlin, 1989). The adjusted incidence used in Figure 5 is the sum of the adjusted incidences for each HIV exposure group.

The Lowess procedure makes no assumption about the overall trends in the data. A fitted value is computed for each month by weighted least squares regression using only the adjusted number of cases diagnosed during an interval about the month (in Figure 5, the 20% of months closest to the chosen month); the weights decrease for times further from the chosen month. The procedure assumes that incidence during the interval about each month is approximately a linear function of time. Lowess tends to produce a curve that is linear at each end, as observed in the figure; predictions of future numbers of cases should not be made by extrapolating the Lowess curve.

The Lowess curve should be considered a description of the overall trend in AIDS cases. This curve emphasizes that the rate of increase in incidence slowed during the middle of 1987. See *MMWR* 1990;39:[in press].