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Current Trends

State-Specific Estimates of Smoking-Attributable Mortality and Years of Potential Life Lost — United States, 1985

Cigarette smoking is the chief avoidable cause of death in the United States (*1*). Although annual estimates of smoking-attributable mortality in the United States vary by method and data source, the estimates are uniformly large and range from a low of 270,000 (*2*) to a high of 485,000 (*3*). An estimated 320,515 deaths were attributable to smoking in 1984 (*4*), representing approximately 16% of the total deaths in the United States for that year. Years of potential life lost (YPLL) have also been used to measure the impact of smoking-attributable disease (*4,5*).

In 1987, a computer software program (Smoking-Attributable Mortality, Morbidity, and Economic Cost [SAMMEC]) developed by the Center for Nonsmoking and Health, Minnesota Department of Health, was distributed by CDC to the other states (*6*). This software facilitates calculations of smoking-attributable mortality, YPLL, and economic costs. Using the software, all 50 states and the District of Columbia completed these calculations for 1985.

For smoking-attributable deaths and YPLL, the smoking-attributable fractions (SAFs) for 21 smoking-related diseases among adults were calculated using weighted relative risks estimated from four prospective studies on the health effects of smoking (*2,4*). In addition, risks for four pediatric diseases related to maternal smoking were included in the SAMMEC calculations (*7*). Age- and sex-specific mortality data for 1985 were obtained from each state's vital records system. Age- and sex-specific weighted smoking prevalence rates (CDC, unpublished data) were obtained from the 1985 Current Population Survey (supplement) of the U.S. Bureau of the Census. The smoking-attributable YPLL were calculated by two methods: 1) to age 65 years and 2) to average life expectancy (*5*). State-specific rates per 100,000 persons for smoking-attributable mortality and YPLL were calculated using state-specific population data provided by the U.S. Bureau of the Census for 1985 (U.S. Bureau of the Census, unpublished data). These rates were not age-adjusted because insufficient age-specific population data were available to permit age adjustment for all states.

According to state-specific estimates, more than 314,000 U.S. deaths were caused by smoking in 1985. The average number of smoking-attributable deaths per state was 6168 (ranging from 271 in Alaska to 28,533 in California) (Table 1). Of all smoking-attributable deaths in the United States, 67% were among men, 32% among women, and <1% among children <5 years of age. These deaths in young children

YPLL – Continued

resulted from low birthweight/short gestation, respiratory distress syndrome, other respiratory diseases of the newborn, and other diseases of children associated with maternal smoking (*4*). Smoking-attributable deaths accounted for approximately

TABLE 1. Smoking-attributable deaths and years of potential life lost (YPLL), by state – United States, 1985

State	Smoking-attributable deaths	YPLL before age 65	YPLL before life expectancy
Alabama	5,174	19,131	44,956
Alaska	271	2,031	4,762
Arizona	3,844	9,826	44,442
Arkansas	3,845	11,357	45,265
California	28,533	79,491	331,415
Colorado	3,005	8,728	35,028
Connecticut	4,269	11,366	48,470
Delaware	849	3,163	11,056
District of Columbia	911	4,185	12,736
Florida	18,186	45,030	204,593
Georgia	7,539	28,912	96,943
Hawaii	766	2,987	12,554
Idaho	959	2,252	10,527
Illinois	15,846	49,665	193,435
Indiana	7,945	23,063	94,012
Iowa	4,017	8,425	41,037
Kansas	3,153	7,762	34,229
Kentucky	6,497	20,782	80,039
Louisiana	5,571	18,421	71,361
Maine	1,861	5,207	21,031
Maryland	5,266	17,676	38,491
Massachusetts	8,515	20,653	90,422
Michigan	12,453	38,974	150,591
Minnesota	5,039	12,304	53,476
Mississippi	3,233	11,285	40,634
Missouri	7,638	19,410	81,418
Montana	1,047	2,768	11,997
Nebraska	2,231	4,595	22,016
Nevada	1,474	4,869	19,125
New Hampshire	1,398	3,549	15,620
New Jersey	10,180	30,723	75,888
New Mexico	1,217	3,956	14,245
New York	26,880	78,176	335,319
North Carolina	8,297	34,772	112,805
North Dakota	760	3,382	4,335
Ohio	15,881	49,178	187,208
Oklahoma	4,731	13,586	54,999
Oregon	3,737	8,618	41,803
Pennsylvania	17,961	46,658	207,325
Rhode Island	1,571	3,494	17,254
South Carolina	3,979	14,815	51,987
South Dakota	963	2,245	10,133
Tennessee	6,537	22,460	82,274
Texas	16,828	57,007	208,946
Utah	742	3,371	12,343
Vermont	740	1,907	8,438
Virginia	7,184	24,693	92,115
Washington	5,593	15,239	65,133
West Virginia	3,325	8,531	38,573
Wisconsin	5,636	13,583	59,816
Wyoming	497	1,828	6,056
Total	**314,574**	**936,089**	**3,648,676**
Average	**6,168**	**18,355**	**71,543**

YPLL – Continued

936,000 YPLL before age 65 years in 1985. When average life expectancy was used as a cut-off point, approximately 3.6 million YPLL resulted from the smoking-attributable deaths.

The average state smoking-attributable mortality rate was 130.0 per 100,000 persons (ranging from 45.3 in Utah to 175.9 in Kentucky) (Table 2). The average rate of smoking-attributable YPLL before age 65 years was 447.8 per 100,000 persons <65 years of age (ranging from 223.5 in Utah to 773.6 in the District of Columbia). The average rate of smoking-attributable YPLL before actual life expectancy was 1503.8 per 100,000 persons (ranging from 643.2 in North Dakota to 2167.3 in Kentucky).

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Editorial Note: Smoking causes more premature deaths than all other health-risk behaviors in the United States (*8*). The state-specific calculations of smoking-attributable mortality permit comparison of the impact of smoking with that of other health risks in states. Even as smoking prevalence declines in this country (*9*), smoking-attributable illness will continue to produce an enormous disease burden well into the 21st century (*10*). Thus, efforts to reduce tobacco use in each state must continue to be a high public health priority.

The national estimate for the total number of smoking-attributable deaths reported here is remarkably similar to the 1984 estimate (320,515) (*4*), despite the following differences in the methods used to calculate the two estimates: 1) the 1985 state-specific mortality data were used in these calculations rather than 1984 national mortality data; 2) different SAFs for lung cancer among women were used in the two calculations; and 3) deaths among nonsmokers caused by passive smoking (1570) and deaths from cigarette-caused fires (3825) were included in the previous estimate (*4*) but not in the state-specific estimates used here.

YPLL — Continued

The longitudinal studies used to derive relative risk estimates for the SAMMEC calculations involved persons who began smoking between 1900 and 1950. The pattern of smoking among U.S. men was well-established by the end of that period;

TABLE 2. Smoking-attributable mortality (SAM) rate and rate of years of potential life lost (YPLL) per 100,000 persons, by state — United States, 1985

State	SAM	YPLL before age 65	YPLL before life expectancy
Alabama	129.5	545.2	1125.0
Alaska	54.3	421.4	954.3
Arizona	122.6	313.3	1417.2
Arkansas	163.7	565.0	1927.0
California	109.5	341.3	1272.0
Colorado	94.2	300.6	1098.4
Connecticut	135.0	413.6	1532.9
Delaware	137.6	577.2	1791.9
District of Columbia	147.6	773.6	2064.2
Florida	161.3	485.7	1814.4
Georgia	127.7	544.5	1642.3
Hawaii	77.0	333.4	1261.7
Idaho	96.1	253.3	1054.8
Illinois	137.8	490.3	1682.6
Indiana	144.6	475.7	1711.5
Iowa	139.5	341.4	1424.9
Kansas	130.2	370.1	1413.3
Kentucky	175.9	639.4	2167.3
Louisiana	125.1	459.3	1602.2
Maine	161.0	519.1	1819.3
Maryland	121.3	455.2	886.5
Massachusetts	146.6	410.8	1556.3
Michigan	137.3	483.9	1659.8
Minnesota	120.3	335.4	1276.9
Mississippi	124.7	494.3	1567.1
Missouri	152.2	448.2	1622.8
Montana	127.4	382.3	1459.5
Nebraska	140.1	333.9	1328.9
Nevada	158.5	582.4	2056.5
New Hampshire	140.6	404.7	1571.4
New Jersey	134.9	466.4	1005.7
New Mexico	84.9	305.7	994.1
New York	151.6	505.1	1890.6
North Carolina	134.9	639.2	1834.5
North Dakota	112.8	577.1	643.2
Ohio	148.0	521.2	1744.7
Oklahoma	144.1	472.2	1675.8
Oregon	139.1	369.2	1556.3
Pennsylvania	151.6	459.6	1749.4
Rhode Island	163.6	425.6	1797.3
South Carolina	121.4	504.8	1585.9
South Dakota	137.2	371.7	1443.4
Tennessee	137.8	539.0	1734.6
Texas	103.6	387.8	1286.4
Utah	45.3	223.5	753.5
Vermont	138.3	404.0	1577.2
Virginia	129.7	498.5	1662.7
Washington	128.6	396.4	1497.7
West Virginia	171.7	508.4	1992.4
Wisconsin	118.1	326.7	1253.0
Wyoming	98.4	394.0	1199.2
Total	**132.5**	**449.0**	**1539.3**
Average	**130.0**	**447.8**	**1503.8**

YPLL – Continued

however, women did not begin smoking in large numbers until the 1950s and 1960s (*11*). Therefore, the results produced by SAMMEC probably underestimate the actual disease impact of smoking among women in 1985.

The smoking-attributable mortality and YPLL rates reported here were not age-adjusted, thus limiting comparisons among states. Despite these limitations, SAMMEC is a useful epidemiologic tool that helps organize and translate surveillance data into an understandable framework. Some states have already reported their use of the data produced by SAMMEC (*12–14*). The SAMMEC software also demonstrates the effectiveness of public health surveillance data when linked by state epidemiologists, state-based health promotion professionals, state vital records departments, federal public health agencies, and others in addressing smoking and other public health problems.

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Perspectives in Disease Prevention and Health Promotion

Guidelines to Prevent Simian Immunodeficiency Virus Infection in Laboratory Workers and Animal Handlers

Simian immunodeficiency virus (SIV) belongs to the family *Retroviridae* (subfamily *Lentivirinae*) and is closely related to human immunodeficiency virus types 1 and 2 (HIV-1 and HIV-2), the etiologic agents of acquired immunodeficiency syndrome (AIDS). Although no reports of infection in humans have been documented, the expanding use of SIV as a model of HIV infection has raised concern about the

SIV – Continued

potential risk of SIV transmission to humans. Therefore, a working group was established by CDC and the National Institutes of Health (NIH) to formulate specific guidelines intended to minimize the risk of SIV transmission to humans.

BACKGROUND

Originally reported in 1985, the first isolate from a rhesus macaque was called simian T-lymphotropic virus III (STLV-III) (*1*). Viral isolates have since been obtained from several species of nonhuman primates including African green monkeys (*2*), sooty mangabeys (*3*), pig-tailed macaques (*4*), and stump-tailed macaques (*5*). Limited studies of wild-caught African green monkeys from Central Africa indicate a seroprevalence of approximately 30%–50%, apparently without associated immunodeficiency disease. The seroprevalence of SIV among rhesus monkeys in captive colonies (whether from natural infections or interspecies transmission) appears to be low (i.e., 0–1%) (*6*). In contrast, captive sooty mangabeys may have seroprevalence rates as high as 80% (H. McClure, personal communication). The prevalence of SIV infection among many other nonhuman primate species is unknown.

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TABLE I. Summary – cases of specified notifiable diseases, United States

Disease	45th Week Ending			Cumulative, 45th Week Ending		
	Nov. 12, 1988	Nov. 14, 1987	Median 1983-1987	Nov. 12, 1988	Nov. 14, 1987	Median 1983-1987
Acquired Immunodeficiency Syndrome (AIDS)	183	U*	202	26,501	17,098	6,846
Aseptic meningitis	185	206	238	5,787	10,039	9,370
Encephalitis: Primary (arthropod-borne & unspec)	17	16	25	672	1,145	1,145
Post-infectious	-	1	1	108	90	93
Gonorrhea: Civilian	10,434	15,506	16,382	599,205	670,556	770,083
Military	197	553	498	10,087	14,109	18,345
Hepatitis: Type A	543	594	475	22,192	21,337	19,696
Type B	382	569	503	19,303	21,968	22,364
Non A, Non B	22	53	67	2,169	2,584	3,088
Unspecified	37	66	114	1,954	2,710	4,422
Legionellosis	21	23	17	820	840	651
Leprosy	7	1	5	143	176	210
Malaria	19	18	17	869	796	875
Measles: Total†	119	3	10	2,585	3,506	2,627
Indigenous	116	3	3	2,323	3,089	2,198
Imported	3	-	1	262	417	303
Meningococcal infections	34	58	43	2,432	2,522	2,322
Mumps	41	123	70	3,964	11,336	2,879
Pertussis	49	48	48	2,419	2,203	2,203
Rubella (German measles)	1	1	8	185	319	591
Syphilis (Primary & Secondary): Civilian	556	715	581	34,895	30,704	24,199
Military	2	-	1	139	141	144
Toxic Shock syndrome	6	6	6	302	292	328
Tuberculosis	278	481	440	18,250	18,430	18,430
Tularemia	-	4	4	165	182	182
Typhoid Fever	3	9	9	327	294	322
Typhus fever, tick-borne (RMSF)	4	3	6	587	574	718
Rabies, animal	54	63	85	3,716	4,126	4,753

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1988		Cum. 1988
Anthrax	-	Leptospirosis	41
Botulism: Foodborne (Calif. 1, Alaska 1)	25	Plague	14
Infant (Va. 1)	31	Poliomyelitis, Paralytic	1
Other	3	Psittacosis	77
Brucellosis (N.Y. City 1)	58	Rabies, human	-
Cholera	6	Tetanus	48
Congenital rubella syndrome	4	Trichinosis	39
Congenital syphilis, ages < 1 year	426		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Three of the 119 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 November 12, 1988 and November 14, 1987 (45th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis: Primary	Encephalitis: Post-infectious	Gonorrhea (Civilian)	Gonorrhea (Civilian)	Hepatitis (Viral), by type: A	Hepatitis (Viral), by type: B	Hepatitis (Viral), by type: NA,NB	Hepatitis (Viral), by type: Unspecified	Legionellosis	Leprosy
	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	26,501	5,787	672	108	599,205	670,556	22,192	19,303	2,169	1,954	820	143
NEW ENGLAND	1,096	367	24	4	18,817	20,661	744	1,027	109	83	46	15
Maine	26	19	2	-	349	598	18	48	5	1	4	-
N.H.	34	39	1	3	229	348	40	64	9	4	4	-
Vt.	10	26	7	-	105	198	14	39	6	4	3	-
Mass.	584	154	8	1	6,365	7,225	356	643	71	59	32	14
R.I.	78	77	-	-	1,745	1,877	79	73	10	-	3	1
Conn.	364	52	6	-	10,024	10,415	237	160	8	15	-	-
MID. ATLANTIC	8,807	617	52	4	94,048	105,825	1,638	2,738	162	270	198	8
Upstate N.Y.	1,122	339	33	1	13,889	15,317	662	666	63	19	74	-
N.Y. City	4,852	119	8	3	38,890	56,178	309	1,140	16	198	44	7
N.J.	2,114	61	11	-	13,514	14,477	353	626	56	38	40	1
Pa.	719	98	-	-	27,755	19,853	314	306	27	15	40	-
E.N. CENTRAL	1,880	949	169	13	101,250	102,349	1,465	2,040	192	111	184	4
Ohio	412	359	59	3	23,208	22,966	293	474	30	18	73	-
Ind.	80	90	20	-	7,815	8,187	147	299	19	24	20	-
Ill.	897	87	32	10	30,701	29,653	467	443	68	29	-	3
Mich.	399	367	42	-	31,854	32,623	352	593	51	37	54	-
Wis.	92	46	16	-	7,672	8,920	206	231	24	3	37	1
W.N. CENTRAL	660	243	51	11	25,674	27,161	1,232	887	95	31	69	1
Minn.	141	29	11	3	3,470	4,095	89	116	19	3	3	-
Iowa	39	35	9	3	1,933	2,632	43	77	13	2	17	-
Mo.	350	98	1	-	14,655	14,259	753	530	44	16	20	-
N. Dak.	4	5	4	-	163	259	6	12	3	5	1	-
S. Dak.	7	18	5	2	438	543	15	4	2	-	14	-
Nebr.	33	11	11	2	1,383	1,802	46	40	2	-	5	-
Kans.	86	47	10	1	3,632	3,571	280	108	12	5	9	1
S. ATLANTIC	4,684	1,245	101	40	169,428	175,873	2,065	4,006	333	290	126	1
Del.	62	39	3	-	2,667	2,995	44	125	7	4	13	-
Md.	497	181	10	3	17,748	20,064	261	612	38	25	18	1
D.C.	434	19	1	1	12,702	11,703	16	39	3	1	1	-
Va.	328	168	32	4	12,405	12,853	330	282	66	194	10	-
W. Va.	16	34	22	-	1,179	1,256	14	62	4	3	-	-
N.C.	249	157	21	-	24,011	25,887	282	727	80	-	31	-
S.C.	165	21	-	1	13,198	13,866	39	462	11	5	22	-
Ga.	649	141	1	2	32,091	31,416	539	567	13	6	20	-
Fla.	2,284	485	11	29	53,427	55,833	540	1,130	111	52	11	-
E.S. CENTRAL	664	393	60	8	47,937	50,619	691	1,232	164	13	47	2
Ky.	85	136	20	1	4,867	5,067	459	247	58	2	20	-
Tenn.	293	46	15	-	16,352	17,810	150	550	39	-	8	-
Ala.	182	159	25	2	14,512	15,939	50	323	57	10	13	2
Miss.	104	52	-	5	12,206	11,803	32	112	10	1	6	-
W.S. CENTRAL	2,323	711	79	3	64,597	75,774	2,715	1,782	190	476	23	30
Ark.	75	14	5	-	6,420	8,559	303	96	5	17	4	-
La.	318	113	22	1	12,897	12,976	133	314	25	16	6	1
Okla.	127	66	7	-	6,149	8,177	446	157	42	27	13	-
Tex.	1,803	518	45	2	39,131	46,062	1,833	1,215	118	416	-	29
MOUNTAIN	776	207	26	3	12,887	17,537	2,938	1,435	225	155	41	1
Mont.	11	4	-	-	367	494	38	50	10	4	2	-
Idaho	9	1	-	-	298	618	122	97	7	4	-	-
Wyo.	6	2	-	-	178	384	5	12	3	-	3	-
Colo.	281	69	3	-	2,827	3,947	199	173	63	69	8	1
N. Mex.	41	21	3	1	1,290	1,930	484	211	18	1	4	-
Ariz.	257	68	11	1	4,700	5,906	1,621	570	67	50	16	-
Utah	58	25	4	1	472	538	264	119	36	18	3	-
Nev.	113	17	5	-	2,755	3,720	205	203	21	9	5	-
PACIFIC	5,611	1,055	110	22	64,567	94,757	8,704	4,156	699	525	86	81
Wash.	342	-	7	4	6,071	7,863	1,990	751	171	61	21	7
Oreg.	155	-	-	-	2,805	3,512	1,185	509	76	21	2	1
Calif.	5,001	937	98	18	54,235	81,154	4,997	2,796	441	432	60	61
Alaska	16	23	3	-	929	1,498	520	50	6	6	-	1
Hawaii	97	95	2	-	527	730	12	50	5	5	3	11
Guam	1	-	-	-	122	177	9	13	-	2	1	5
P.R.	1,200	68	4	1	1,125	1,720	50	236	40	40	-	3
V.I.	32	-	-	-	365	246	1	7	2	-	-	-
Amer. Samoa	-	-	-	-	65	74	3	2	-	5	-	2
C.N.M.I.	-	-	-	-	39	-	1	3	-	4	-	1

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending November 12, 1988 and November 14, 1987 (45th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	1988	Cum. 1988	Cum. 1987
UNITED STATES	869	116	2,323	3	262	3,506	2,432	41	3,964	49	2,419	2,203	1	185	319
NEW ENGLAND	66	-	83	-	52	280	208	-	117	13	174	149	-	9	1
Maine	3	-	7	-	-	3	9	-	-	11	24	28	-	-	1
N.H.	3	-	67	-	44	162	23	-	105	-	47	38	-	5	-
Vt.	4	-	-	-	-	26	15	-	5	-	4	4	-	-	-
Mass.	33	-	2	-	2	65	92	-	7	-	60	50	-	3	-
R.I.	6	-	-	-	-	2	21	-	-	2	17	3	-	1	-
Conn.	17	-	7	-	6	22	48	-	-	-	22	26	-	-	-
MID. ATLANTIC	150	52	863	-	49	582	256	-	324	2	177	258	-	14	12
Upstate N.Y.	37	-	19	-	18	40	121	-	96	-	103	151	-	2	10
N.Y. City	80	-	46	-	6	463	62	-	101	-	5	8	-	7	1
N.J.	11	52	269	-	11	39	63	-	44	-	8	17	-	3	1
Pa.	22	-	529	-	14	40	10	-	83	2	61	82	-	2	-
E.N. CENTRAL	43	-	139	-	57	365	338	-	794	1	233	250	-	31	38
Ohio	10	-	2	-	32	5	122	-	113	-	49	72	-	1	-
Ind.	3	-	57	-	-	-	26	-	72	1	73	17	-	-	-
Ill.	2	-	56	-	16	185	71	-	292	-	44	16	-	26	27
Mich.	23	-	24	-	5	29	79	-	206	-	34	46	-	4	9
Wis.	5	-	-	-	4	146	40	-	111	-	33	99	-	-	2
W.N. CENTRAL	17	-	11	-	2	230	89	18	155	-	123	130	-	2	2
Minn.	5	-	10	-	1	39	19	-	-	-	49	13	-	-	-
Iowa	2	-	-	-	-	-	-	-	34	-	29	56	-	-	1
Mo.	6	-	1	-	1	189	32	2	38	-	22	31	-	-	-
N. Dak.	-	-	-	-	-	1	1	-	-	-	11	12	-	-	-
S. Dak.	-	-	-	-	-	-	4	-	1	-	5	3	-	-	-
Nebr.	1	-	-	-	-	-	12	-	11	-	-	1	-	-	-
Kans.	3	-	-	-	-	1	21	16	71	-	7	14	-	2	1
S. ATLANTIC	111	6	380	2	22	159	417	3	656	2	236	300	-	17	18
Del.	1	-	-	-	-	32	2	-	-	-	7	5	-	-	2
Md.	17	-	11	2†	5	7	49	-	129	1	45	17	-	1	3
D.C.	12	-	-	-	-	1	8	-	259	-	1	-	-	-	1
Va.	19	6	204	-	2	1	48	-	134	-	21	50	-	11	1
W. Va.	3	-	6	-	-	-	7	1	16	-	8	39	-	-	-
N.C.	13	-	-	-	5	5	66	-	51	-	65	119	-	-	1
S.C.	10	-	-	-	-	2	35	-	6	-	1	-	-	-	-
Ga.	5	-	-	-	-	9	65	1	29	1	36	23	-	2	2
Fla.	31	-	159	-	10	102	137	1	32	-	52	47	-	3	8
E.S. CENTRAL	19	-	60	-	-	6	229	-	437	1	99	48	-	2	3
Ky.	-	-	35	-	-	-	53	-	208	-	12	2	-	-	2
Tenn.	-	-	1	-	-	-	124	-	211	-	29	15	-	2	1
Ala.	10	-	-	-	-	4	37	-	15	1	54	24	-	-	-
Miss.	9	-	24	-	-	2§	15	N	N	-	4	7	-	-	-
W.S. CENTRAL	78	-	14	-	3	448	164	10	770	1	200	269	-	11	11
Ark.	4	-	-	-	1	-	20	6	105	-	23	12	-	4	2
La.	12	-	-	-	-	-	47	3	286	-	17	48	-	-	-
Okla.	10	-	8	-	-	4	19	1	197	1	62	158	-	1	5
Tex.	52	-	6	-	2	444	78	-	182	-	98	51	-	6	4
MOUNTAIN	41	-	117	-	30	496	69	1	192	13	710	192	-	6	25
Mont.	5	-	5	-	28	128	2	-	2	-	2	6	-	-	8
Idaho	2	-	-	-	1	-	8	-	4	6	320	62	-	-	1
Wyo.	-	-	-	-	-	2	-	-	3	-	2	5	-	-	1
Colo.	14	-	112	-	1	9	18	-	31	-	29	65	-	2	-
N. Mex.	2	-	-	-	-	317	11	N	N	-	51	11	-	-	-
Ariz.	12	-	-	-	-	36	18	-	129	7	279	33	-	-	5
Utah	4	-	-	-	-	1	10	-	7	-	26	10	-	3	10
Nev.	2	-	-	-	-	3	2	1	16	-	1	-	-	1	-
PACIFIC	344	58	656	1	47	940	662	9	519	16	467	607	1	93	209
Wash.	21	-	7	-	-	44	61	-	50	2	107	91	-	-	2
Oreg.	16	-	6	-	2	100	39	N	N	1	46	70	-	-	2
Calif.	294	58	639	1†	37	791	539	9	429	13	259	218	1	65	133
Alaska	3	-	1	-	-	1	6	-	13	-	7	6	-	-	2
Hawaii	10	-	3	-	8	4	17	-	16	-	48	222	-	28	70
Guam	-	-	-	-	1	2	-	-	2	-	-	-	-	1	1
P.R.	2	36	226	-	-	763	10	1	10	-	15	18	-	3	3
V.I.	-	-	-	-	-	-	-	-	31	-	-	-	-	-	1
Amer. Samoa	-	-	-	-	-	1	2	-	3	-	-	-	-	-	-
C.N.M.I.	1	-	-	-	-	-	1	-	2	-	-	-	-	-	-

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

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending November 12, 1988 and November 14, 1987 (45th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	34,895	30,704	302	18,250	18,430	165	327	587	3,716
NEW ENGLAND	1,020	549	21	474	555	4	33	12	15
Maine	12	1	4	22	22	-	-	-	1
N.H.	6	3	4	9	18	-	-	-	5
Vt.	3	2	2	4	14	-	1	-	-
Mass.	376	259	9	276	304	3	20	7	-
R.I.	30	11	-	38	58	-	5	2	-
Conn.	593	273	2	125	139	1	7	3	9
MID. ATLANTIC	8,470	5,719	46	3,741	3,321	-	66	18	412
Upstate N.Y.	515	221	22	482	438	-	13	11	43
N.Y. City	5,925	4,266	6	2,073	1,615	-	40	6	-
N.J.	874	606	3	583	589	-	11	-	13
Pa.	1,156	626	15	603	679	-	2	1	356
E.N. CENTRAL	1,014	772	43	2,026	2,052	1	29	37	136
Ohio	89	92	29	387	375	-	7	25	5
Ind.	49	53	1	205	201	-	2	2	29
Ill.	464	401	1	883	916	-	14	7	29
Mich.	385	173	12	460	473	1	4	2	34
Wis.	27	53	-	91	87	-	2	1	39
W.N. CENTRAL	211	159	43	456	523	74	4	91	411
Minn.	17	18	5	76	101	3	2	2	121
Iowa	22	26	7	50	35	-	-	-	13
Mo.	137	72	12	224	284	45	2	55	20
N. Dak.	1	1	3	15	12	1	-	-	96
S. Dak.	-	11	4	31	24	16	-	7	112
Nebr.	28	11	4	13	24	2	-	1	17
Kans.	6	20	8	47	43	7	-	26	32
S. ATLANTIC	12,410	10,568	19	3,848	3,922	5	36	197	1,271
Del.	91	64	1	36	36	2	-	1	55
Md.	593	540	3	370	339	-	2	22	285
D.C.	605	352	-	172	139	-	2	-	10
Va.	369	287	-	355	380	2	12	17	319
W. Va.	36	12	-	66	88	-	1	2	87
N.C.	709	629	9	418	456	-	1	107	8
S.C.	639	657	3	404	401	-	-	22	113
Ga.	2,220	1,466	-	620	691	1	5	23	263
Fla.	7,148	6,561	3	1,407	1,392	-	13	3	131
E.S. CENTRAL	1,722	1,645	23	1,500	1,654	11	3	86	265
Ky.	58	20	9	324	382	5	1	29	108
Tenn.	735	639	10	452	495	5	-	37	69
Ala.	500	432	3	456	479	-	1	9	83
Miss.	429	554	1	268	298	1	1	11	5
W.S. CENTRAL	3,758	3,793	28	2,327	2,179	51	8	131	483
Ark.	204	225	2	259	263	32	-	26	81
La.	753	700	-	299	272	-	4	2	10
Okla.	133	151	9	213	208	16	-	88	30
Tex.	2,668	2,717	17	1,556	1,436	3	4	15	362
MOUNTAIN	742	608	35	485	546	11	9	11	340
Mont.	3	9	-	19	13	-	1	6	187
Idaho	3	5	5	19	28	-	-	1	11
Wyo.	1	3	-	5	2	2	-	3	38
Colo.	96	110	3	57	139	5	3	1	28
N. Mex.	46	50	2	89	85	2	1	-	11
Ariz.	144	267	16	212	226	1	4	-	40
Utah	18	22	9	29	24	1	-	-	9
Nev.	431	142	-	55	29	-	-	-	16
PACIFIC	5,548	6,891	44	3,393	3,678	8	139	4	383
Wash.	178	138	7	200	213	1	13	1	-
Oreg.	266	264	1	129	103	1	7	1	-
Calif.	5,063	6,472	35	2,888	3,138	4	116	2	371
Alaska	14	4	-	41	52	2	-	-	12
Hawaii	27	13	1	135	172	-	3	-	-
Guam	3	2	-	21	26	-	-	-	-
P.R.	595	811	-	208	270	-	5	-	65
V.I.	1	9	-	6	2	-	-	-	-
Amer. Samoa	-	-	-	3	8	-	1	-	-
C.N.M.I.	1	-	-	17	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending November 12, 1988 (45th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	625	439	112	49	14	11	58
Boston, Mass.	201	135	32	23	6	5	25
Bridgeport, Conn.	46	31	11	1	1	2	4
Cambridge, Mass.	19	18	1	-	-	-	2
Fall River, Mass.	26	23	2	1	-	-	1
Hartford, Conn.	60	36	14	8	2	-	3
Lowell, Mass.	24	13	7	4	-	-	2
Lynn, Mass.	17	14	3	-	-	-	2
New Bedford, Mass.	28	22	4	2	-	-	-
New Haven, Conn.	58	39	11	4	3	1	6
Providence, R.I.	34	25	6	3	-	-	2
Somerville, Mass.	5	3	2	-	-	-	-
Springfield, Mass.	38	27	7	1	1	2	7
Waterbury, Conn.	19	17	1	-	-	1	3
Worcester, Mass.	50	36	11	2	1	-	1
MID. ATLANTIC	2,516	1,634	498	264	63	56	116
Albany, N.Y.	65	51	9	2	2	1	1
Allentown, Pa.	13	8	3	1	1	-	1
Buffalo, N.Y.	100	71	20	4	2	3	6
Camden, N.J.	34	17	7	4	5	1	1
Elizabeth, N.J.	23	19	3	1	-	-	3
Erie, Pa.†	25	21	2	1	1	-	3
Jersey City, N.J.	52	32	11	6	1	2	-
N.Y. City, N.Y.	1,466	927	308	179	26	26	63
Newark, N.J.	67	30	13	12	7	5	3
Paterson, N.J.	25	14	4	5	-	2	1
Philadelphia, Pa.	212	124	42	28	7	10	6
Pittsburgh, Pa.†	49	31	12	3	2	1	3
Reading, Pa.	35	27	3	3	2	-	3
Rochester, N.Y.	113	78	24	4	5	2	9
Schenectady, N.Y.	30	24	5	-	1	-	1
Scranton, Pa.†	28	22	6	-	-	-	2
Syracuse, N.Y.	94	67	20	5	1	1	3
Trenton, N.J.	27	19	3	3	-	2	2
Utica, N.Y.	18	16	2	-	-	-	-
Yonkers, N.Y.	40	36	1	3	-	-	5
E.N. CENTRAL	2,100	1,407	423	144	57	69	91
Akron, Ohio	53	39	11	2	-	1	1
Canton, Ohio	60	47	9	3	1	-	5
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	104	64	26	9	2	3	7
Cleveland, Ohio	147	95	26	14	5	7	5
Columbus, Ohio	133	90	27	12	1	3	-
Dayton, Ohio	102	68	21	7	4	2	2
Detroit, Mich.	185	98	44	20	17	6	8
Evansville, Ind.	60	39	12	1	1	7	4
Fort Wayne, Ind.	52	34	15	1	-	2	3
Gary, Ind.§	13	9	4	-	-	-	1
Grand Rapids, Mich.	52	43	7	1	1	-	6
Indianapolis, Ind.	159	107	31	11	4	6	8
Madison, Wis.	39	27	7	2	-	3	2
Milwaukee, Wis.	109	82	19	3	1	4	5
Peoria, Ill.	54	43	9	1	-	1	5
Rockford, Ill.	39	34	4	1	-	-	5
South Bend, Ind.	29	25	1	1	2	-	3
Toledo, Ohio	89	60	17	5	5	2	4
Youngstown, Ohio	57	41	8	5	3	-	1
W.N. CENTRAL	838	621	138	46	17	16	39
Des Moines, Iowa	52	42	7	1	1	1	6
Duluth, Minn.	27	20	5	1	1	-	1
Kansas City, Kans.	38	30	4	1	-	3	3
Kansas City, Mo.	117	80	20	11	3	3	4
Lincoln, Nebr.	37	29	5	1	-	2	4
Minneapolis, Minn.	213	155	39	12	6	1	13
Omaha, Nebr.	71	49	14	5	3	-	5
St. Louis, Mo.	163	119	25	12	2	5	-
St. Paul, Minn.	49	43	5	1	-	-	-
Wichita, Kans.§	71	54	14	1	1	1	3
S. ATLANTIC	1,215	747	270	110	35	52	50
Atlanta, Ga.	136	85	28	14	4	5	3
Baltimore, Md.	247	155	60	18	7	7	17
Charlotte, N.C.	65	37	18	5	1	4	3
Jacksonville, Fla.	110	67	28	8	5	2	3
Miami, Fla.	130	69	31	18	4	8	-
Norfolk, Va.	50	31	7	4	3	5	3
Richmond, Va.	73	56	15	2	-	-	4
Savannah, Ga.	70	42	12	7	1	8	8
St. Petersburg, Fla.	58	42	13	1	-	2	3
Tampa, Fla.	56	28	12	9	2	5	2
Washington, D.C.	192	112	43	22	8	6	3
Wilmington, Del.§	28	23	3	2	-	-	1
E.S. CENTRAL	768	504	162	55	20	27	43
Birmingham, Ala.	147	90	33	14	3	7	3
Chattanooga, Tenn.	43	34	6	1	-	2	1
Knoxville, Tenn.	63	42	13	1	7	-	6
Louisville, Ky.	99	71	21	4	1	2	3
Memphis, Tenn.	199	125	42	18	3	11	18
Mobile, Ala.	39	25	11	2	-	1	3
Montgomery, Ala.	51	34	8	3	3	3	5
Nashville, Tenn.	127	83	28	12	3	1	4
W.S. CENTRAL	1,660	1,030	354	166	60	48	55
Austin, Tex.	38	25	8	3	1	1	3
Baton Rouge, La.	60	41	15	4	-	-	1
Corpus Christi, Tex.§	48	37	10	1	-	-	1
Dallas, Tex.	183	103	36	25	12	7	5
El Paso, Tex.	62	36	15	5	3	3	4
Fort Worth, Tex	93	67	15	4	3	4	4
Houston, Tex.§	735	437	169	89	24	16	18
Little Rock, Ark.	43	27	7	3	2	3	2
New Orleans, La.	103	60	24	8	6	4	-
San Antonio, Tex.	155	91	37	13	6	8	7
Shreveport, La.	54	39	10	2	3	-	4
Tulsa, Okla.	86	67	8	9	-	2	6
MOUNTAIN	600	393	120	44	17	25	42
Albuquerque, N. Mex.	69	48	13	4	2	2	4
Colo. Springs, Colo.	29	21	3	4	-	1	8
Denver, Colo.	94	59	18	11	2	4	8
Las Vegas, Nev.	70	37	22	7	3	1	5
Ogden, Utah	18	16	1	1	-	-	3
Phoenix, Ariz.	131	79	23	8	7	14	8
Pueblo, Colo.	29	24	5	-	-	-	4
Salt Lake City, Utah	57	30	18	5	2	1	-
Tucson, Ariz.	103	79	17	4	1	2	2
PACIFIC	1,458	966	272	134	48	35	93
Berkeley, Calif.	12	9	1	1	1	-	1
Fresno, Calif.	89	63	12	6	2	6	7
Glendale, Calif.	9	6	3	-	-	-	-
Honolulu, Hawaii	40	27	9	3	1	-	7
Long Beach, Calif.	74	44	21	5	2	2	10
Los Angeles Calif.	250	163	51	22	10	2	11
Oakland, Calif.	75	42	17	9	4	3	4
Pasadena, Calif.	21	18	-	-	1	2	2
Portland, Oreg.	122	86	18	9	6	2	6
Sacramento, Calif.	94	59	18	11	2	4	8
San Diego, Calif.	163	108	28	17	7	3	9
San Francisco, Calif.	127	85	18	20	-	4	4
San Jose, Calif.	201	129	43	21	6	2	15
Seattle, Wash.	111	79	20	6	3	3	-
Spokane, Wash.	48	30	11	4	1	2	5
Tacoma, Wash.	22	18	2	-	2	-	4
TOTAL	11,780††	7,741	2,349	1,012	331	339	587

*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.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

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

SIV – Continued

In rhesus monkeys and other susceptible nonhuman primate species (e.g., pig-tailed macaque, crab-eating macaque), SIV infection leads to a chronic wasting disease syndrome with depletion of CD4 (T4) lymphocytes and lymphadenopathy. The clinical course of this infection in monkeys, like that of AIDS in humans, is complicated by various opportunistic infections (*7*). SIV also causes a primary encephalopathy with many of the features of HIV-associated encephalopathy (*8*). Therefore, SIV infection is an important animal model of AIDS.

SIV proteins, especially the viral core proteins (i.e., p24, capsid protein), are antigenically related to HIV-1 proteins (*9*). Some SIV isolates, however, are antigenically more related to HIV-2 than to HIV-1 by cross-reactivity of viral capsid and envelope proteins. SIV isolates that have been molecularly cloned share approximately 75% of their genomic sequences with HIV-2 and approximately 30% with HIV-1 (*10*). SIV isolates are clearly distinct from Type D primate retrovirus (i.e., simian retrovirus 1) that also causes a form of chronic wasting immunodeficiency disease in several primate species (*11*). Also, SIV is distinct from simian T-cell lymphotropic virus type I (STLV-I), which shares extensive genomic sequences with human T-lymphotropic virus type I and is associated with T-cell lymphomas in nonhuman primates (*12*).

SIV can be isolated from a variety of tissues and body fluids—including blood, plasma, cerebrospinal fluid, and parenchymal tissues—of infected nonhuman primates. Limited data exist concerning the presence or concentration of virus in semen, cervical secretions, saliva, urine, breast milk, and amniotic fluids of experimentally or naturally infected nonhuman primates. However, the virus apparently is rarely isolated from semen, urine, and saliva despite repeated attempts at isolation (M. Daniel, N. Lerche, personal communication). There is no evidence to indicate that SIV is transmitted by the respiratory route (N. Lerche, H. McClure, M. Daniel, personal communication).

The cell tropism of SIV in culture depends partially on the strain of virus propagated and conditions of cell culture. Strains of SIV have been successfully cultured in human lymphocyte cell lines (e.g., HuT 78, HT, CEMx174) and in primary human and nonhuman primate peripheral blood leukocyte cultures (*13*). SIV appears to be primarily tropic for CD4 (T4)-positive leukocytes and has not been successfully propagated in B-lymphocyte cell lines (e.g., Raji). SIV antigen has been demonstrated by immunohistochemical methods in lymph node sinus histiocytes, macrophages, and giant cells (*14*) as well as in macrophage-derived cells in brain tissue from diseased monkeys (*8*).

Limited data exist concerning the reactivation of *Herpesvirus simiae* (B virus) or other latent infectious agents in SIV-infected macaque monkeys. However, all macaque monkeys not proven to be free of B virus infection, regardless of SIV infection status, should be regarded as infected with B virus and handled according to published guidelines (*15*). The routine screening of macaques for evidence of B virus infection or SIV infection is not recommended. However, in situations in which studies may cause immunosuppression (e.g., during experimental SIV infections), the investigator may elect to determine the infection status of the animals because B virus shedding may be enhanced in infected animals.

EVALUATING THE RISK OF SIV TRANSMISSION TO HUMANS

The risk, if any, of human infection with SIV has not been defined. However, since SIV shares many characteristics with HIV, many of the same biosafety precautions are

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indicated. No serologic or virologic evidence of infection in humans exists; specific precautions in handling SIV are based on recommendations developed for HIV and other lentiviruses. No licensed tests exist for serologic evaluation of humans exposed to SIV. The absence of licensed tests complicates medical surveillance and investigations of the virus infection following exposure to SIV. In addition, the antigenic cross-reactivity between SIV and HIV may complicate testing of exposed humans.

However, standardized serologic procedures that test for SIV antibody are used in laboratories performing research with the virus. Recently, a protein unique to SIV and HIV-2 (product of gene *vpx*) was used as antigen in a serologic test that may allow easier distinction between HIV-1 and SIV antibodies (*16*). Furthermore, gene amplification (i.e., polymerase chain reaction) may allow differentiation of specific virus gene sequences directly from specimens obtained from exposed persons. Based on these events, development of specific and sensitive tests is under way.

GUIDELINES TO PREVENT SIV INFECTION IN LABORATORY WORKERS AND ANIMAL HANDLERS

Exposure Concerns. In the laboratory, SIV must be presumed to be present in all SIV cultures, in all materials derived from such cultures, in all specimens from SIV-antibody–positive nonhuman primates, and in/on all equipment and devices coming in contact with these materials. In this setting, the skin (especially when scratches, cuts, abrasions, dermatitis, or other lesions are present) and mucous membranes of the eye, nose, and mouth should be considered as potential pathways for virus entry; contact of these sites with SIV-containing materials should be considered an exposure to SIV.

Biosafety Levels. Biosafety level (BSL) 2 standards and special practices, containment equipment, and facilities, as described in the CDC/NIH publication *Biosafety in Microbiological and Biomedical Laboratories* (*17*), are recommended for activities involving all clinical specimens, body fluids, and tissues from SIV-infected primates. In laboratories maintaining BSL 2, personnel must have documented specific training in handling primate retroviruses, and the laboratory must have limited and properly secured access and written standard operating procedures for techniques in which SIV is used. Procedures involving cultures of SIV should be conducted in biological safety cabinets or other physical containment equipment.

Inoculation Precautions. In the research laboratory, inoculation of SIV-containing material represents an important potential route of exposure to SIV in humans. The use of syringes, needles, glass, and other sharp objects should be avoided, but when their use is essential, needles and disposable cutting instruments should be discarded after use into a lidded puncture-resistant container located in the work area. Needles should not be resheathed, bent, broken, removed, or otherwise manipulated by hand.

Gloves. Latex or vinyl gloves should be worn by all personnel engaged in activities that may involve direct skin contact with infectious specimens, cultures, or tissues. Gloves should not be washed or disinfected for reuse; reuse of such gloves may cause "wicking" (i.e., enhanced penetration of liquids through undetected holes in the glove) or deterioration of the gloves. When gloves have become visibly contaminated, they should be carefully removed and, after the hands are washed, replaced with a fresh pair of gloves. Handwashing with soap and water immediately after infectious materials are handled and work is completed, even when gloves have been worn, should be routine practice.

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Clothing. Laboratory coats, gowns, or uniforms should be worn by laboratory workers when engaged in any work involving SIV or materials known or suspected to contain SIV. Clothing that becomes contaminated with SIV or SIV-containing materials should be decontaminated before being laundered or discarded. Clothing can be decontaminated by extensive soaking of the garment with chemical disinfectants (e.g., 1 to 10 dilution of household bleach).

Aerosol Control. Although aerosol transmission of SIV has not been demonstrated, the generation of aerosols, droplets, splashes, and spills should be avoided. A biological safety cabinet should be used for all procedures that might generate aerosols or droplets and for all infected cell culture manipulations. When centrifuging infected materials, centrifuge containers with safety caps that are designed to contain aerosols (in the event of spillage) should be used. When cell sorters are used, plastic shielding or other containment devices should be used to reduce exposure to infectious droplets.

Contaminated Virus Preparations. During the propagation of SIV in the research laboratory, manipulation of concentrated virus preparations or conduct of procedures that may produce aerosols or droplets should be performed in a BSL 2 facility, with additional practices and containment equipment recommended for BSL 3 (*17*). These practices should include wearing closed-front surgical-type gowns, masks and protective eyewear or face shields, and latex or vinyl gloves that extend to cover the wrist and sleeves of the surgical gown. Activities involving large-volume production or manipulation of highly concentrated SIV should be conducted in a BSL 3 facility, using only BSL 3 practices and equipment. All discarded cultures and laboratory supplies used in experimental manipulations of cultures should be autoclaved before disposal.

Decontamination. The susceptibility of SIV to chemical disinfectants has not been defined. Work surfaces, however, should be decontaminated daily with commercially available chemical disinfectants such as sodium hypochlorite solution 10% (1 to 10 dilution of household bleach), ethanol 70%–85%, or ethanol-iodine complex 2%. These effectively inactivate HIV (*18,19*). Prompt decontamination of spills (immediate absorption and control of the spill and soaking of the contaminated area with chemical disinfectant) should be standard practice. Gloves should be worn when cleaning up such spills. The use of plastic-backed absorbent padding to control spillage during manipulation of cultures or other SIV-containing fluids should be encouraged.

Animal Biosafety Levels. Animal BSL 2 practices, containment equipment, and facilities are recommended for activities involving nonhuman primates or any animals experimentally infected or inoculated with SIV. Animal-care personnel, investigators, technical staff, and other persons who enter animal rooms should wear coats, protective gloves, coveralls or uniforms, and, as appropriate, face shields or surgical masks and eye shields to protect the skin and mucous membranes of the eyes, nose, and mouth.

Handling SIV-Infected Nonhuman Primates. Nonhuman primates experimentally infected with SIV may have other primary, as well as opportunistic, pathogens in their body fluids and tissues. Thus, laboratory workers and animal handlers should follow accepted BSL 2 practices at all times to prevent inadvertent exposure to agents that may be present in clinical specimens or body fluids. All macaque monkeys not known

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to be free of *Herpesvirus simiae* (B virus) should be regarded as infected and handled according to published guidelines (*15*).

Personnel Training. Primary investigators, other scientific personnel, and other persons who handle nonhuman primates used in SIV research should be trained in proper methods of animal restraint and use of protective clothing. Animal handlers should be familiar with various drugs routinely used for providing chemical restraint and with proper procedures for administering medications. All persons engaged in research involving nonhuman primates should be specifically trained in the natural history of SIV infection. Particular attention should be given to the need to wear protective clothing to prevent mucous membrane contact with potentially infectious material, particularly animal blood from an SIV-infected nonhuman primate. Caution should be emphasized during venipuncture procedures or the administration of injections to nonhuman primates involved in SIV research. Intravenous injections of nonhuman primates should be done while the animal is anesthetized and should be administered through a plastic or teflon catheter with syringes fitted with interlocking connectors.

Medical Surveillance. A licensed test specific for SIV antibody is not yet available. Standardized serologic procedures to identify SIV antibody are used in laboratories performing research with the virus. A medical surveillance program should be in place in all laboratories that test specimens, conduct research, or produce reagents involving SIV. The nature and scope of the surveillance program will vary by institutional policy and applicable local, state, and federal regulations (*20*). Laboratories performing research with SIV should initiate a program to store serum from laboratory workers. Serum specimens should be collected at 6-month intervals and stored. Routine testing of the serum is optional but, if performed, should be done using standardized serologic procedures in qualified laboratories.

Human Exposure to SIV. If a laboratory worker has a parenteral, skin, or mucous membrane exposure to blood, body fluids, or virus culture material from nonhuman primates, the source material should be identified and, if possible, tested for the presence of SIV. All wounds incurred from SIV-infected nonhuman primates or from SIV-contaminated instruments should be cleansed with soap and water. Such incidents should be reported to the animal-care supervisor and/or laboratory supervisor and recorded in an accident report log. If the source material is positive for SIV antibody, virus, or antigen or unavailable for examination, the worker should be counseled regarding the risk of infection and evaluated medically. The worker should be advised to report and to seek medical evaluation for any acute febrile illness that occurs within 12 weeks after the exposure. Medical evaluation should include examination for serum antibody against SIV. Seronegative workers should be retested 6 weeks after the exposure and periodically thereafter (e.g., 12 weeks and 6 months after exposure). All institutions should establish written policies regarding the management of laboratory exposure to SIV; such policies should deal with confidentiality, counseling, and other related issues. The lack of data concerning the potential transmission of SIV between humans does not allow for specific recommendations concerning behavior changes in a person confirmed seropositive for SIV. However, an SIV-seropositive person should not donate blood.

Postexposure Treatment. No effective prophylactic treatment for SIV exists; research is needed in animals concerning postexposure prophylaxis (e.g., immune globulin,

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antiviral therapy). Data from such research may be useful in future exposures of humans to SIV.

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