CDC
CENTERS FOR DISEASE CONTROL

October 4, 1991 / Vol. 40 / No. 39

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Update: Self-Induced Malaria Associated with Malariotherapy for Lyme Disease — Texas

In December 1990, the Texas Department of Health (TDH) was contacted by a man who had recently moved from the northeastern United States and who was considering malariotherapy for Lyme disease (LD). He described a 2-year history of unsuccessful treatment with multiple antibiotics for arthralgias and palpitations, which had been diagnosed as LD.

TDH personnel discouraged the man from attempting malariotherapy, emphasizing previously published warnings (*1*). Despite these warnings, he obtained blood infected with *Plasmodium vivax* from an unknown source in the northeastern United States and injected himself intravenously with the infected blood on December 20 and 23; he experienced his first febrile episode on December 25. Thick and thin smears of the patient's blood, obtained by TDH on January 4, 1991, revealed *P. vivax*. The patient reported that he subsequently experienced approximately 10 paroxysms of fever up to 104.9 F (40.5 C) lasting 12 hours. The patient refused all attempts at medical intervention and treated himself during January 13–16 with chloroquine. No malaria parasites were detected in the patient's blood when tested on January 22.

The patient reported that the infected blood had been tested at the source for human immunodeficiency virus, syphilis, and hepatitis B virus. TDH obtained the remainder of the infected blood for testing and detected numerous *P. vivax* parasites.

Reported by: J Rawlings, MPH, JN Perdue, D Perrotta, PhD, D Simpson, MD, State Epidemiologist, Texas Dept of Health. Bacterial Zoonoses Br, Div of Vector-Borne Infectious Diseases, and Malaria Br, Div of Parasitic Diseases, National Center for Infectious Diseases; Div of Field Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: The findings of the TDH investigation suggest a serious new problem associated with the use of malariotherapy for treatment of LD—the uncontrolled interstate shipment of infectious blood in the United States. The infected blood was possibly mailed from the northeastern United States to Texas and was administered in the United States rather than, as in a previously reported episode, in Mexico (*1*).

The practice of malariotherapy for treating LD has been emphatically discouraged because there have been no controlled, well-designed studies showing that this approach is effective (*1*) and because of the severe morbidity associated with malaria infection. In addition, this practice poses a risk for coinfection with other bloodborne

Self-Induced Malaria — Continued

pathogens and for transfusion reactions. There also may be a small risk for local transmission of malaria in communities in which persons with parasitemia reside. Finally, the unauthorized interstate transport of etiologic agents and of blood and blood products for human use is a violation of federal regulations.

Malariotherapy for LD is experimental and should be studied only with stringent safeguards in place, as outlined in the Declaration of Helsinki (*2*). In the United States, human experiments involving new treatments routinely require approval by the Food and Drug Administration, approval by an institutional review board for the protection of human subjects, and informed patient consent.

Physicians throughout the United States should be alert for cases of self-induced or iatrogenic malaria and are encouraged to promptly report such cases through state health departments to the Malaria Branch, Division of Parasitic Diseases, National Center for Infectious Diseases, CDC; telephone (404) 488-4046.

References

1. CDC. Imported malaria associated with malariotherapy of Lyme disease—New Jersey. MMWR 1990;39:873–5.
2. Page IH. Experiments on people [Commentary]. JAMA 1975;232:257–8.

Publicly Funded HIV Counseling and Testing — United States, 1990

A critical component of CDC's national human immunodeficiency virus (HIV)-prevention program is support for HIV counseling and testing (CT) services. Sixty-five HIV-prevention programs are in health departments in 50 states, the District of Columbia, six cities, and eight territories.* Each calendar quarter, the programs report to CDC aggregate or client record data about the number of 1) pretest counseling sessions, HIV-antibody tests, positive tests, and posttest counseling sessions, by CT site; 2) HIV-antibody tests and positive tests, by self-reported risk category; and 3) HIV-antibody tests and positive tests, by age group, sex, and race/ethnicity.† This report summarizes data reported for 1990.

Serologic Testing Results by CT Site

During 1990, the 65 programs performed 1,366,537 HIV-antibody tests; 51,170 (3.7%) were positive (Table 1). Of these, freestanding HIV CT sites (sites that provide HIV CT services exclusively) and sexually transmitted diseases (STD) clinics together accounted for 832,985 (61.0%) of reported tests and 32,851 (64.2%) of positive test results. Family planning and prenatal/obstetric clinics accounted for 14.4% of reported tests and 3.2% of positive tests; drug-treatment centers and prisons accounted for 9.2% of reported tests and 13.6% of positive tests.

Risk Category

Of 1,283,222 reported tests for which information on self-reported risk category was available, the percentage of seropositive tests was highest for homosexual/

*The cities are Chicago, Houston, Los Angeles, New York City, Philadelphia, and San Francisco. The territories are American Samoa, Federated States of Micronesia, Guam, Marshall Islands, Northern Mariana Islands, Palau, Puerto Rico, and Virgin Islands.

†Because several areas do not report all variables on each person tested (i.e., risk factor[s], sex, age, and race/ethnicity), the totals in the tables do not correspond.

HIV Counseling and Testing — Continued

bisexual male injecting drug users[§] (IDUs) (19.5%), homosexual/bisexual males (14.7%), heterosexual IDUs (10.7%), and persons with hemophilia (8.9%) (Table 2). These four categories accounted for 18.1% of tests and 60.7% of positive results from persons who reported their risk category.

Persons categorized as "heterosexuals with reported risk" (including heterosexuals whose sex partners are at risk for or are infected with HIV and heterosexuals with multiple sex partners) represent 536,455 (41.8%) of tests and 10,010 (20.2%) of all positive results. Persons who reported "other" than established risks for HIV infection or "no acknowledged risk" (heterosexuals who indicated no history of risk behavior or no partner[s] at risk for or infected with HIV) accounted for 489,672 (38.2%) tests. Combined, these predominantly heterosexual persons—heterosexuals with reported risk and others with no acknowledged risk—had a seropositivity rate of 1.8%, yet accounted for 38.1% of reported positive results.

Demographic Categories

Of 1,309,385 tests for which demographic information was given, race/ethnicity was specified for 1,280,294 (97.8%). Whites, blacks, and Hispanics accounted for

[§]CDC is now using the term "injecting drug user" (IDU) (replacing "intravenous-drug user" [IVDU]) to describe persons who are at risk for HIV infection because of drug injection. This term indicates recognition that injection routes other than intravenous have been associated with HIV infection.

TABLE 1. Number and percentage of HIV-antibody tests and positive tests at publicly funded sites reported to CDC, by counseling and testing (CT) site — United States, 1990

CT site	No. tests	HIV positive No.	HIV positive (%)	Total tests (%)	Total HIV positive (%)
Sexually transmitted diseases clinic	443,956	12,931	(2.9)	(32.5)	(25.3)
Freestanding site*	389,029	19,920	(5.1)	(28.5)	(38.9)
Family-planning clinic	122,278	1,054	(0.9)	(8.9)	(2.1)
Prenatal/obstetric clinic	75,216	559	(0.7)	(5.5)	(1.1)
Other public health department	74,004	3,180	(4.3)	(5.4)	(6.2)
Prison	65,171	3,806	(5.8)	(4.8)	(7.4)
Drug-treatment center	59,744	3,166	(5.3)	(4.4)	(6.2)
Private physician's office/clinic[†]	56,649	2,329	(4.1)	(4.1)	(4.6)
Tuberculosis clinic	10,334	297	(2.9)	(0.8)	(0.6)
College[§]	3,890	30	(0.8)	(0.3)	(0.1)
Other nonhealth department sites	47,811	2,543	(5.3)	(3.5)	(5.0)
Unclassified sites	18,455	1,355	(7.3)	(1.4)	(2.6)
Total[¶] **	**1,366,537**	**51,170**	**(3.7)**	**(100.0)**	**(100.0)**

*Sites that provide HIV CT services exclusively.

[†]Some private physicians use state health department laboratories for testing high-risk persons.

[§]College health offices, as other sites listed, receive funding from state and local health departments.

[¶]Totals vary from those in Table 2 because of variation in reporting by both persons and test sites.

**In addition to the tests reported here, a large but unknown number of persons are tested for HIV antibody in hospitals, outpatient medical facilities, physicians' offices, blood-donation centers, military facilities, and other settings.

HIV Counseling and Testing — Continued

49.5%, 35.3%, and 11.3%, respectively, of HIV tests performed, compared with their representation in the U.S. population of 78.4%, 11.8%, and 7.8%, respectively (*1*). The racial/ethnic distribution of those tested was similar to that of new reports of persons with AIDS in 1990, of whom 51.5% were white, 30.4% were black, and 17.6% were Hispanic (*2*) (Table 3). Blacks, whites, and Hispanics accounted for 41.7%, 35.9%, and 18.5%, respectively, of total positive tests (Table 3). Seropositivity was highest among Hispanics (6.0%), followed by blacks (4.4%) and whites (2.7%). Males accounted for 666,250 (50.9%) of the 1,309,385 tests and 37,668 (77.6%) of the 48,566 positive results. Seropositivity in males and females was 5.5% and 1.7%, respectively. Of persons for whom age was known, persons aged 20–29 years accounted for 43.0% of tests and 36.5% of positive results, and persons aged 30–39 years accounted for 27.8% of tests and 41.8% of positive results. Seropositivity rates for persons aged 20–29 and 30–39 years were 3.1% and 5.5%, respectively. For adolescents aged 13–19 years, 173,826 tests were performed; of these, 1090 (0.6%) were positive.

Posttest Counseling

Client record data, representing a 43% subset of the aggregate CT data and providing greater detail about persons receiving CT, indicate that posttest counseling was completed for at least 72.5% of persons with HIV-antibody–positive test results and 55.7% of those with negative test results (*3*). Overall, at least 56.4% of persons in the client record database received posttest counseling; however, the proportion of persons was higher for freestanding test sites (81.6%) than for STD clinics (33.9%).

Reported by: HIV-prevention programs of state and local health depts. Program Development, Technical Support Section, Program Operations Br, Div of STD/HIV Prevention, and Office of the Director, National Center for Prevention Svcs, CDC.

Editorial Note: Knowledge of HIV-infection status and appropriate counseling can assist persons in initiating changes in behavior that will reduce the risk for infecting others or for becoming infected (*4,5*). Early intervention, including medical evaluation, antiviral therapy, and pharmacologic prophylaxis, can enhance and prolong the

TABLE 2. Number and percentage of HIV-antibody tests and positive tests at publicly funded counseling and testing sites reported to CDC, by self-reported risk category — United States, 1990

Risk category	No. tests	HIV positive		Total known tests (%)	Total known HIV positive (%)
		No.	(%)		
Heterosexuals with reported risk*	536,455	10,010	(1.9)	(41.8)	(20.2)
Homosexual/bisexual males	114,496	16,774	(14.7)	(8.9)	(33.9)
Heterosexual injecting drug users (IDUs)	105,936	11,296	(10.7)	(8.3)	(22.8)
Blood recipients, 1978–1985	26,002	633	(2.4)	(2.0)	(1.3)
Homosexual/bisexual male IDUs	9,649	1,880	(19.5)	(0.8)	(3.8)
Persons with hemophilia	1,012	90	(8.9)	(0.1)	(0.2)
Other risk†/No acknowledged risk§	489,672	8,863	(1.8)	(38.2)	(17.9)
Total¶	**1,283,222**	**49,546**	**(3.9)**	**(100.0)**	**(100.0)**

*Heterosexuals whose sex partners are at risk for or are infected with HIV and heterosexuals with multiple sex partners.

†Persons who reported other than established risks for HIV infection.

§Heterosexuals who indicated no history of risk behavior or no partner(s) at risk for or infected with HIV.

¶Totals vary from those in Table 1 because of variation in reporting by persons and by test sites.

HIV Counseling and Testing — Continued

years of productive life for HIV-positive persons. A substantial proportion of persons infected with HIV have been diagnosed and have received services at publicly funded CT programs (*6*). However, a large proportion of the estimated 1 million HIV-infected persons in the United States remain unaware of their infection (*7*).

Because the data in this report reflect characteristics only of persons tested at public clinics, the findings are not representative of all persons tested in the United States. Most of these data were collected in service delivery settings where attendance is largely voluntary; therefore, data regarding risk factors may be less reliable than those obtained in population-based surveys or epidemiologic investigations. In addition to the tests reported here, a large number of persons not reported here are tested for HIV antibody in hospitals, outpatient medical facilities, physicians' offices, blood-donation centers, military facilities, and other settings.

Because testing of some clients is repeated, neither the total number of persons tested nor the total number who are HIV-antibody–positive in publicly funded settings are known. However, based on monitoring in four publicly funded programs, an estimated 12%–30% (mean: 23%) of HIV-antibody tests and 3%–18% (mean: 13%) of positive tests represented persons tested previously (CDC, unpublished data). By using these rates to adjust cumulatively reported CT data, an estimated 3,250,000 persons have been tested since 1985 through publicly funded programs, and an estimated 185,000 of these persons have been seropositive. Studies are under way to determine the most effective strategy for ensuring that those persons who test positive but do not return for their test results will be notified of their status.

One possible explanation for the difference in the return rate for freestanding sites and STD clinics is that persons attend freestanding sites specifically to obtain an HIV antibody test, whereas those who attend STD clinics primarily for clinical care of an STD may be offered HIV CT as a component of that clinical care.

National HIV prevention and intervention efforts are dependent on self-perceptions of risk and subsequent risk-reduction efforts in response to that risk. To ensure that

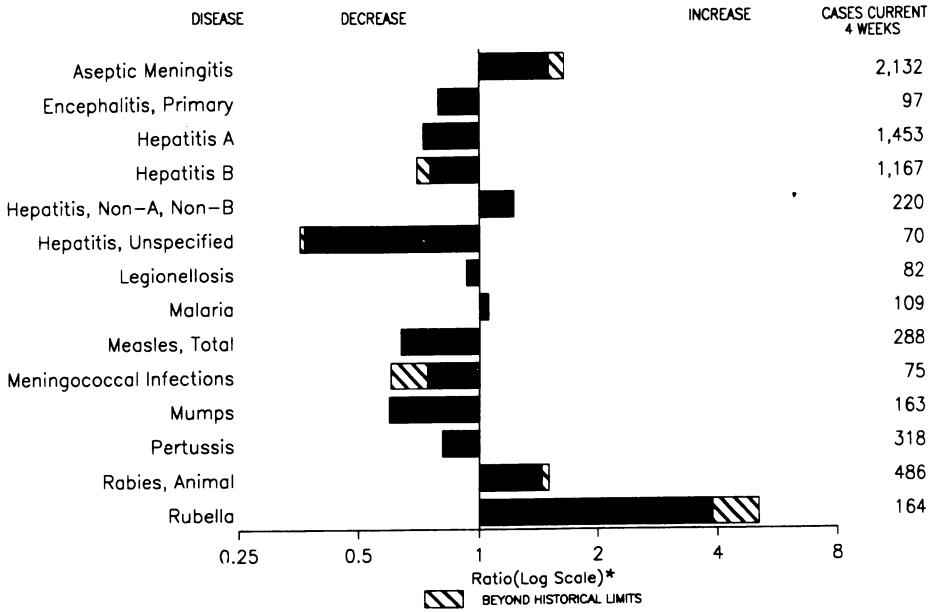
(Continued on page 675)

TABLE 3. Number and percentage of HIV-antibody tests and positive tests at publicly funded counseling and testing sites reported to CDC, by race/ethnicity, in comparison with racial/ethnic distribution of U.S. population* — United States, 1990

Race/Ethnicity	No. tests	HIV positive No.	HIV positive (%)	Total known tests (%)	Total known HIV positive (%)	AIDS cases 1990 (%)	Total U.S. population (%)
White	648,509	17,421	(2.7)	(49.5)	(35.9)	(51.5)	(78.4)
Black	462,126	20,256	(4.4)	(35.3)	(41.7)	(30.4)	(11.8)
Hispanic	148,352	8,970	(6.0)	(11.3)	(18.5)	(17.0)	(7.8)
Asian/Pacific Islander	14,605	206	(1.4)	(1.1)	(0.4)	(0.6)	(1.7)
American Indian/ Alaskan Native	6,702	159	(2.4)	(0.5)	(0.3)	(0.2)	(0.7)
Total known†	1,280,294	47,012	(3.7)	(97.8)	(96.8)	(99.7)	(100.0)
Unknown	29,091	1,554	(5.3)	(2.2)	(3.2)	(0.3)	
Total	**1,309,385**	**48,566**	**(3.7)**	**(100.0)**	**(100.0)**	**(100.0)**	

*1980 U.S. census projected to 1988.
†Number of tests for which some demographic information was given.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 28, 1991, with historical data — United States



*Ratio of current 4-week total to the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending September 28, 1991 (39th Week)

	Cum. 1991		Cum. 1991
AIDS	33,745	Measles: imported	178
Anthrax	-	indigenous	8,404
Botulism: Foodborne	12	Plague	7
Infant	54	Poliomyelitis, Paralytic*	-
Other	5	Psittacosis	65
Brucellosis	58	Rabies, human	2
Cholera	21	Syphilis, primary & secondary	30,658
Congenital rubella syndrome	14	Syphilis, congenital, age < 1 year	15
Diphtheria	2	Tetanus	37
Encephalitis, post-infectious	63	Toxic shock syndrome	219
Gonorrhea	441,804	Trichinosis	59
Haemophilus influenzae (invasive disease)	2,194	Tuberculosis	16,798
Hansen Disease	106	Tularemia	145
Leptospirosis	45	Typhoid fever	319
Lyme Disease	6,763	Typhus fever, tickborne (RMSF)	498

*Three suspected cases of poliomyelitis have been reported in 1991; none of the 8 suspected cases in 1990 have been confirmed to date. Five of the 13 suspected cases in 1989 were confirmed and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 28, 1991, and September 29, 1990 (39th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	33,745	10,330	679	63	441,804	504,443	17,706	12,572	2,247	940	877	6,783
NEW ENGLAND	1,334	1,240	25	1	10,922	13,893	434	641	54	27	58	1,208
Maine	46	124	3	-	123	168	18	18	2	-	2	-
N.H.	33	150	6	-	154	176	25	21	5	-	7	29
Vt.	13	216	3	-	41	44	23	13	6	-	3	5
Mass.	749	373	10	1	4,697	5,781	204	445	29	24	41	201
R.I.	72	370	1	-	922	859	80	19	10	3	5	107
Conn.	421	7	2	-	4,985	6,865	84	125	2	-	-	866
MID. ATLANTIC	9,170	1,863	50	11	51,849	67,034	1,774	1,201	240	16	250	4,185
Upstate N.Y.	1,162	955	23	7	9,900	10,732	672	448	143	10	88	2,779
N.Y. City	5,239	291	1	-	19,043	27,653	621	186	7	-	36	-
N.J.	1,848	-	-	-	8,477	11,352	203	280	48	-	24	700
Pa.	921	617	26	4	14,429	17,297	278	287	42	6	102	706
E.N. CENTRAL	2,481	1,990	207	7	81,617	92,350	2,244	1,450	356	44	187	203
Ohio	480	798	73	2	25,013	26,475	297	321	140	16	90	116
Ind.	235	145	20	1	8,899	8,476	299	165	1	1	16	9
Ill.	1,209	326	64	4	24,839	29,241	948	212	57	4	18	20
Mich.	402	631	46	-	18,044	21,436	232	461	100	23	35	58
Wis.	155	90	4	-	4,822	6,722	468	291	58	-	28	-
W.N. CENTRAL	890	507	46	7	21,839	26,485	1,776	526	237	21	44	261
Minn.	179	98	24	-	2,289	3,254	319	58	11	2	8	71
Iowa	86	108	-	4	1,501	1,882	44	36	8	3	11	15
Mo.	507	213	12	3	13,393	15,760	480	348	211	11	13	157
N. Dak.	4	7	2	-	49	105	33	4	4	1	1	1
S. Dak.	1	10	4	-	275	198	649	7	1	-	3	1
Nebr.	42	20	2	-	1,364	1,317	179	28	1	-	7	-
Kans.	71	51	2	-	2,968	3,969	72	45	1	4	1	16
S. ATLANTIC	8,146	1,815	132	28	132,318	144,891	1,337	2,618	292	185	137	498
Del.	59	59	2	-	2,160	2,307	7	38	5	2	2	49
Md.	777	191	21	1	14,538	17,252	223	306	48	13	30	199
D.C.	507	54	1	-	6,950	9,794	62	124	1	1	6	2
Va.	563	299	32	3	13,642	13,551	130	167	24	123	11	104
W. Va.	47	36	20	-	939	952	20	44	2	12	-	34
N.C.	422	253	28	-	26,350	22,702	133	401	98	-	14	58
S.C.	252	38	-	-	10,823	11,680	34	552	16	3	28	10
Ga.	1,165	243	8	2	30,016	31,894	170	394	44	-	13	26
Fla.	4,354	642	20	22	26,900	34,759	558	592	54	31	33	16
E.S. CENTRAL	804	682	30	-	42,987	43,934	190	1,040	305	3	45	90
Ky.	124	156	8	-	4,590	5,040	41	136	6	2	17	38
Tenn.	252	203	14	-	15,044	13,360	106	771	277	-	13	39
Ala.	256	253	8	-	12,481	14,735	33	122	18	1	14	13
Miss.	172	70	-	-	10,872	10,799	10	11	4	-	1	-
W.S. CENTRAL	3,243	1,117	81	2	50,936	55,958	2,460	1,693	97	190	37	63
Ark.	149	55	24	-	5,964	6,768	225	87	3	5	7	23
La.	560	99	15	-	11,353	10,510	101	219	6	5	6	2
Okla.	142	4	3	1	5,208	4,762	220	177	43	14	14	29
Tex.	2,392	959	39	1	28,411	33,918	1,914	1,210	45	166	10	9
MOUNTAIN	956	202	17	2	9,034	10,784	2,793	769	142	118	61	16
Mont.	24	18	1	-	73	142	70	61	4	5	4	-
Idaho	19	-	-	-	119	108	73	59	2	1	3	2
Wyo.	13	-	-	-	76	136	102	11	3	-	-	8
Colo.	342	77	7	1	2,536	3,037	462	110	73	24	13	-
N. Mex.	89	17	-	-	780	977	697	182	10	29	3	-
Ariz.	193	47	9	1	3,399	4,119	881	135	16	48	23	-
Utah	84	15	-	-	229	309	238	56	12	11	4	-
Nev.	192	28	-	-	1,822	1,956	270	155	22	-	11	6
PACIFIC	6,721	914	91	5	40,302	49,114	4,698	2,634	524	336	58	259
Wash.	418	-	8	1	3,373	4,373	432	343	114	19	6	2
Oreg.	212	-	-	-	1,548	1,884	305	237	94	8	2	-
Calif.	5,940	837	81	4	34,119	41,463	3,840	1,992	299	308	48	257
Alaska	16	36	2	-	675	901	86	27	13	1	-	-
Hawaii	135	41	-	-	587	493	35	35	4	-	2	-
Guam	2	-	-	-	-	236	-	-	-	-	-	-
P.R.	1,354	200	2	3	437	523	71	353	145	42	-	-
V.I.	13	-	-	-	295	330	1	9	-	-	-	-
Amer. Samoa	-	-	-	-	-	70	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	159	-	-	-	-	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 28, 1991, and September 29, 1990 (39th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	1991	Cum. 1991	Cum. 1990
UNITED STATES	895	21	8,404	6	178	22,927	1,589	57	3,180	101	1,911	3,050	4	1,271	855
NEW ENGLAND	59	3	58	-	15	288	120	-	24	3	238	318	-	4	8
Maine	1	3	5	-	-	29	11	-	-	2	51	10	-	-	1
N.H.	2	-	-	-	-	8	12	-	4	1	18	47	-	1	1
Vt.	4	-	5	-	-	1	13	-	4	-	4	7	-	-	-
Mass.	27	-	25	-	10	29	64	-	1	-	142	231	-	2	2
R.I.	7	-	2	-	-	30	1	-	3	-	-	4	-	-	1
Conn.	18	-	21	-	5	191	19	-	12	-	23	19	-	1	3
MID. ATLANTIC	149	-	4,372	-	6	1,411	174	3	237	4	151	441	-	561	11
Upstate N.Y.	39	-	334	-	4	313	89	1	87	2	100	293	-	539	10
N.Y. City	59	-	1,710	-	-	368	11	-	-	-	-	-	-	-	-
N.J.	41	-	791	-	1	346	37	-	55	-	1	34	-	-	-
Pa.	10	-	1,537	-	1	384	37	2	95	2	50	114	-	22	1
E.N. CENTRAL	70	-	71	3	14	3,529	256	1	289	-	322	800	-	317	31
Ohio	16	-	1	-	2	537	82	-	69	-	87	139	-	283	1
Ind.	3	-	1	3†	5	417	24	1	7	-	60	107	-	2	-
Ill.	27	-	26	-	-	1,350	74	-	110	-	53	326	-	6	18
Mich.	21	-	41	-	-	473	53	-	84	-	33	71	-	25	9
Wis.	3	-	2	-	7	752	23	-	19	-	89	157	-	1	3
W.N. CENTRAL	29	4	39	3	16	845	87	4	97	21	156	153	-	17	14
Minn.	8	4	12	3†§	15	362	18	1	18	18	63	21	-	6	9
Iowa	6	-	17	-	-	26	10	2	19	1	17	18	-	6	4
Mo.	6	-	-	-	1	98	31	-	27	2	56	86	-	5	-
N. Dak.	1	-	-	-	-	-	1	-	2	-	2	2	-	-	1
S. Dak.	1	-	-	-	-	23	2	-	1	-	4	1	-	-	-
Nebr.	1	-	1	-	-	106	6	1	6	-	8	7	-	-	-
Kans.	6	-	9	-	-	230	19	-	24	-	6	18	-	-	-
S. ATLANTIC	192	4	464	-	22	1,251	285	30	1,140	4	203	249	-	13	18
Del.	2	-	21	-	-	11	2	-	6	-	-	7	-	-	-
Md.	51	-	173	-	3	212	27	4	215	3	51	59	-	6	2
D.C.	12	-	-	-	-	22	13	-	23	-	1	14	-	1	1
Va.	42	-	25	-	5	86	31	-	53	-	18	17	-	-	1
W. Va.	3	-	-	-	-	6	12	1	18	-	9	20	-	-	-
N.C.	12	-	41	-	3	30	49	-	229	-	32	65	-	2	-
S.C.	9	-	13	-	-	4	28	22	380	1	12	5	-	-	-
Ga.	18	-	10	-	5	321	57	-	40	-	38	24	-	-	-
Fla.	43	4	181	-	6	559	66	3	176	-	42	38	-	4	14
E.S. CENTRAL	20	-	7	-	3	186	102	1	157	3	80	135	-	100	4
Ky.	2	-	1	-	1	42	36	-	-	-	-	-	-	-	1
Tenn.	11	-	6	-	1	93	32	-	128	-	31	66	-	100	3
Ala.	7	-	-	-	1	25	32	1	10	3	47	62	-	-	-
Miss.	-	-	-	-	-	26	2	-	19	-	2	7	-	-	-
W.S. CENTRAL	64	3	184	-	14	4,268	115	4	348	26	97	145	-	7	66
Ark.	7	-	-	-	5	42	18	-	42	-	7	15	-	1	3
La.	15	-	-	-	-	10	24	3	26	-	13	28	-	-	-
Okla.	7	-	-	-	-	174	13	-	14	2	29	43	-	-	1
Tex.	35	3	184	-	9	4,042	60	1	266	24	48	59	-	6	62
MOUNTAIN	34	5	1,182	-	19	925	62	2	260	30	256	266	2	21	109
Mont.	1	-	-	-	-	1	10	-	-	-	3	32	-	-	14
Idaho	2	5	432	-	2	26	7	-	8	3	26	48	-	-	49
Wyo.	-	-	1	-	2	15	1	-	4	-	3	-	-	-	-
Colo.	9	-	1	-	5	138	11	-	123	27	106	89	1	2	4
N. Mex.	6	-	117	-	5	93	8	N	N	-	35	17	1	1	-
Ariz.	13	-	393	-	-	303	19	2	99	-	57	49	-	2	32
Utah	2	-	220	-	4	128	-	-	13	-	24	27	-	11	2
Nev.	1	-	18	-	1	221	6	-	13	-	2	4	-	5	8
PACIFIC	278	2	2,027	-	69	10,224	388	12	628	10	408	543	2	231	594
Wash.	20	-	46	-	15	254	53	2	162	6	106	144	-	8	-
Oreg.	8	-	49	-	33	212	48	N	N	-	60	69	-	3	73
Calif.	246	2	1,926	-	13	9,658	277	10	433	4	194	277	2	215	508
Alaska	-	-	2	-	3	80	8	-	10	-	12	4	-	1	-
Hawaii	4	-	4	-	5	20	2	-	23	-	36	49	-	4	13
Guam	-	U	-	U	-	1	-	U	-	U	-	1	U	-	-
P.R.	1	-	93	-	1	1,650	15	-	9	1	46	7	-	1	-
V.I.	2	-	-	-	2	24	-	-	9	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	521	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	4	U	-	-

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

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 28, 1991, and September 29, 1990 (39th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	30,658	36,648	219	16,798	17,486	145	319	498	4,821
NEW ENGLAND	788	1,294	11	480	416	4	32	6	62
Maine	1	7	4	30	6	-	1	-	-
N.H.	12	46	1	5	3	-	1	-	2
Vt.	1	1	-	6	8	-	-	-	-
Mass.	369	507	6	246	218	4	27	5	-
R.I.	44	17	-	69	54	-	-	-	-
Conn.	361	716	-	124	127	-	3	1	60
MID. ATLANTIC	4,763	7,122	36	3,811	4,147	1	68	18	1,641
Upstate N.Y.	103	676	16	254	304	1	13	8	626
N.Y. City	2,389	3,382	2	2,355	2,611	-	36	-	-
N.J.	993	1,171	-	661	691	-	16	6	745
Pa.	1,278	1,893	18	541	541	-	3	4	270
E.N. CENTRAL	3,755	2,566	41	1,675	1,670	6	26	41	135
Ohio	500	399	19	255	297	1	3	24	15
Ind.	129	70	-	165	147	-	-	10	14
Ill.	1,737	986	14	871	850	3	9	4	31
Mich.	998	812	8	303	315	2	10	3	31
Wis.	391	299	-	81	61	-	4	-	44
W.N. CENTRAL	558	406	34	389	450	43	5	32	672
Minn.	51	71	7	74	78	1	2	-	244
Iowa	55	57	7	52	44	-	-	1	133
Mo.	403	216	11	174	235	34	1	20	17
N. Dak.	-	1	-	5	17	-	-	-	76
S. Dak.	1	2	1	27	10	5	-	1	143
Nebr.	12	9	1	15	15	1	2	5	14
Kans.	36	50	7	42	51	2	-	5	45
S. ATLANTIC	9,166	11,807	20	3,149	3,275	4	56	215	1,124
Del.	130	138	1	23	31	-	-	-	125
Md.	737	884	1	275	239	-	10	23	425
D.C.	564	831	1	138	122	-	2	-	10
Va.	673	690	4	262	282	-	8	12	191
W. Va.	22	16	-	51	53	-	1	4	44
N.C.	1,481	1,307	8	418	429	1	3	114	17
S.C.	1,171	787	2	322	359	1	4	31	84
Ga.	2,237	3,061	-	615	555	1	5	29	200
Fla.	2,151	4,093	3	1,045	1,205	1	23	2	28
E.S. CENTRAL	3,433	3,405	9	1,187	1,280	17	2	89	131
Ky.	78	76	4	271	294	4	2	23	39
Tenn.	1,147	1,439	5	388	360	12	-	50	29
Ala.	1,257	1,022	-	290	383	1	-	16	63
Miss.	951	868	-	238	243	-	-	-	-
W.S. CENTRAL	5,628	6,188	14	2,046	2,095	42	21	86	505
Ark.	478	447	3	174	266	30	-	21	36
La.	1,949	1,907	-	197	236	-	4	-	5
Okla.	150	199	4	135	151	11	3	64	141
Tex.	3,051	3,635	7	1,540	1,442	1	14	1	323
MOUNTAIN	452	693	27	437	415	23	10	8	191
Mont.	6	-	1	6	22	9	-	6	36
Idaho	4	6	-	5	10	-	-	-	4
Wyo.	9	2	-	4	5	1	-	-	71
Colo.	64	42	5	33	26	6	1	2	21
N. Mex.	26	35	6	58	81	2	2	-	4
Ariz.	270	496	5	237	188	2	6	-	34
Utah	6	11	10	40	32	3	-	-	13
Nev.	67	101	-	54	51	-	1	-	8
PACIFIC	2,115	3,167	27	3,624	3,738	5	99	3	360
Wash.	126	303	3	215	216	2	6	2	1
Oreg.	64	107	-	88	97	2	4	1	5
Calif.	1,917	2,726	24	3,127	3,251	1	86	-	350
Alaska	4	16	-	46	41	-	-	-	3
Hawaii	4	15	-	148	133	-	3	-	1
Guam	-	2	-	-	34	-	-	-	-
P.R.	319	233	-	167	66	-	9	-	52
V.I.	83	10	-	2	4	-	-	-	-
Amer. Samoa	-	-	-	-	14	-	-	-	-
C.N.M.I.	-	3	-	-	46	-	-	-	-

U: Unavailable

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 28, 1991, and September 29, 1990 (39th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	1991	Cum. 1991	Cum. 1990
UNITED STATES	895	21	8,404	6	178	22,927	1,589	57	3,180	101	1,911	3,050	4	1,271	855
NEW ENGLAND	59	3	58	-	15	288	120	-	24	3	238	318	-	4	8
Maine	1	3	5	-	-	29	11	-	-	2	51	10	-	-	1
N.H.	2	-	-	-	-	8	12	-	4	1	18	47	-	1	1
Vt.	4	-	5	-	-	1	13	-	4	-	4	7	-	-	-
Mass.	27	-	25	-	10	29	64	-	1	-	142	231	-	2	2
R.I.	7	-	2	-	-	30	1	-	3	-	-	4	-	-	1
Conn.	18	-	21	-	5	191	19	-	12	-	23	19	-	1	3
MID. ATLANTIC	149	-	4,372	-	6	1,411	174	3	237	4	151	441	-	561	11
Upstate N.Y.	39	-	334	-	4	313	89	1	87	2	100	293	-	539	10
N.Y. City	59	-	1,710	-	-	368	11	-	-	-	-	-	-	-	-
N.J.	41	-	791	-	1	346	37	-	55	-	1	34	-	-	-
Pa.	10	-	1,537	-	1	384	37	2	95	2	50	114	-	22	1
E.N. CENTRAL	70	-	71	3	14	3,529	256	1	289	-	322	800	-	317	31
Ohio	16	-	1	-	2	537	82	-	69	-	87	139	-	283	1
Ind.	3	-	1	3†	5	417	24	1	7	-	60	107	-	2	-
Ill.	27	-	26	-	-	1,350	74	-	110	-	53	326	-	6	18
Mich.	21	-	41	-	-	473	53	-	84	-	33	71	-	25	9
Wis.	3	-	2	-	7	752	23	-	19	-	89	157	-	1	3
W.N. CENTRAL	29	4	39	3	16	845	87	4	97	21	156	153	-	17	14
Minn.	8	4	12	3†§	15	362	18	1	18	18	63	21	-	6	9
Iowa	6	-	17	-	-	26	10	2	19	1	17	18	-	6	4
Mo.	6	-	-	-	1	98	31	-	27	2	56	86	-	5	-
N. Dak.	1	-	-	-	-	-	1	-	2	-	2	2	-	-	1
S. Dak.	1	-	-	-	-	23	2	-	1	-	4	1	-	-	-
Nebr.	1	-	1	-	-	106	6	1	6	-	8	7	-	-	-
Kans.	6	-	9	-	-	230	19	-	24	-	6	18	-	-	-
S. ATLANTIC	192	4	464	-	22	1,251	285	30	1,140	4	203	249	-	13	18
Del.	2	-	21	-	-	11	2	-	6	-	-	7	-	-	-
Md.	51	-	173	-	3	212	27	4	215	3	51	59	-	6	2
D.C.	12	-	-	-	-	22	13	-	23	-	1	14	-	1	1
Va.	42	-	25	-	5	86	31	-	53	-	18	17	-	-	1
W. Va.	3	-	-	-	-	6	12	1	18	-	9	20	-	-	-
N.C.	12	-	41	-	3	30	49	-	229	-	32	65	-	2	-
S.C.	9	-	13	-	-	4	28	22	380	1	12	5	-	-	-
Ga.	18	-	10	-	5	321	57	-	40	-	38	24	-	-	-
Fla.	43	4	181	-	6	559	66	3	176	-	42	38	-	4	14
E.S. CENTRAL	20	-	7	-	3	186	102	1	157	3	80	135	-	100	4
Ky.	2	-	1	-	1	42	36	-	-	-	-	-	-	-	1
Tenn.	11	-	6	-	1	93	32	-	128	-	31	66	-	100	3
Ala.	7	-	-	-	1	25	32	1	10	3	47	62	-	-	-
Miss.	-	-	-	-	-	26	2	-	19	-	2	7	-	-	-
W.S. CENTRAL	64	3	184	-	14	4,268	115	4	348	26	97	145	-	7	66
Ark.	7	-	-	-	5	42	18	-	42	-	7	15	-	1	3
La.	15	-	-	-	-	10	24	3	26	-	13	28	-	-	-
Okla.	7	-	-	-	-	174	13	-	14	2	29	43	-	-	1
Tex.	35	3	184	-	9	4,042	60	1	266	24	48	59	-	6	62
MOUNTAIN	34	5	1,182	-	19	925	62	2	260	30	256	266	2	21	109
Mont.	1	-	-	-	-	1	10	-	-	-	3	32	-	-	14
Idaho	2	5	432	-	2	26	7	-	8	3	26	48	-	-	49
Wyo.	-	-	1	-	2	15	1	-	4	-	3	-	-	-	-
Colo.	9	-	1	-	5	138	11	-	123	27	106	89	1	2	4
N. Mex.	6	-	117	-	5	93	8	N	N	-	35	17	1	1	-
Ariz.	13	-	393	-	-	303	19	2	99	-	57	49	-	2	32
Utah	2	-	220	-	4	128	-	-	13	-	24	27	-	11	2
Nev.	1	-	18	-	1	221	6	-	13	-	2	4	-	5	8
PACIFIC	278	2	2,027	-	69	10,224	388	12	628	10	408	543	2	231	594
Wash.	20	-	46	-	15	254	53	2	162	6	106	144	-	8	-
Oreg.	8	-	49	-	33	212	48	N	N	-	60	69	-	3	73
Calif.	246	2	1,926	-	13	9,658	277	10	433	4	194	277	2	215	508
Alaska	-	-	2	-	3	80	8	-	10	-	12	4	-	1	-
Hawaii	4	-	4	-	5	20	2	-	23	-	36	49	-	4	13
Guam	-	U	-	U	-	1	-	U	-	U	-	1	U	-	-
P.R.	1	-	93	-	1	1,650	15	-	9	1	46	7	-	1	-
V.I.	2	-	-	-	2	24	-	-	9	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	521	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	4	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 28, 1991, and September 29, 1990 (39th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	30,658	36,648	219	16,798	17,486	145	319	498	4,821
NEW ENGLAND	788	1,294	11	480	416	4	32	6	62
Maine	1	7	4	30	6	-	1	-	-
N.H.	12	46	1	5	3	-	1	-	2
Vt.	1	1	-	6	8	-	-	-	-
Mass.	369	507	6	246	218	4	27	5	-
R.I.	44	17	-	69	54	-	-	-	-
Conn.	361	716	-	124	127	-	3	1	60
MID. ATLANTIC	4,763	7,122	36	3,811	4,147	1	68	18	1,641
Upstate N.Y.	103	676	16	254	304	1	13	8	626
N.Y. City	2,389	3,382	2	2,355	2,611	-	36	-	-
N.J.	993	1,171	-	661	691	-	16	6	745
Pa.	1,278	1,893	18	541	541	-	3	4	270
E.N. CENTRAL	3,755	2,566	41	1,675	1,670	6	26	41	135
Ohio	500	399	19	255	297	1	3	24	15
Ind.	129	70	-	165	147	-	-	10	14
Ill.	1,737	986	14	871	850	3	9	4	31
Mich.	998	812	8	303	315	2	10	3	31
Wis.	391	299	-	81	61	-	4	-	44
W.N. CENTRAL	558	406	34	389	450	43	5	32	672
Minn.	51	71	7	74	78	1	2	-	244
Iowa	55	57	7	52	44	-	-	1	133
Mo.	403	216	11	174	235	34	1	20	17
N. Dak.	-	1	-	5	17	-	-	-	76
S. Dak.	1	2	1	27	10	5	-	1	143
Nebr.	12	9	1	15	15	1	2	5	14
Kans.	36	50	7	42	51	2	-	5	45
S. ATLANTIC	9,166	11,807	20	3,149	3,275	4	56	215	1,124
Del.	130	138	1	23	31	-	-	-	125
Md.	737	884	1	275	239	-	10	23	425
D.C.	564	831	1	138	122	-	2	-	10
Va.	673	690	4	262	282	-	8	12	191
W. Va.	22	16	-	51	53	-	1	4	44
N.C.	1,481	1,307	8	418	429	1	3	114	17
S.C.	1,171	787	2	322	359	1	4	31	84
Ga.	2,237	3,061	-	615	555	1	5	29	200
Fla.	2,151	4,093	3	1,045	1,205	1	23	2	28
E.S. CENTRAL	3,433	3,405	9	1,187	1,280	17	2	89	131
Ky.	78	76	4	271	294	4	2	23	39
Tenn.	1,147	1,439	5	388	360	12	-	50	29
Ala.	1,257	1,022	-	290	383	1	-	16	63
Miss.	951	868	-	238	243	-	-	-	-
W.S. CENTRAL	5,628	6,188	14	2,046	2,095	42	21	86	505
Ark.	478	447	3	174	266	30	-	21	36
La.	1,949	1,907	-	197	236	-	4	-	5
Okla.	150	199	4	135	151	11	3	64	141
Tex.	3,051	3,635	7	1,540	1,442	1	14	1	323
MOUNTAIN	452	693	27	437	415	23	10	8	191
Mont.	6	-	1	6	22	9	-	6	36
Idaho	4	6	-	5	10	-	-	-	4
Wyo.	9	2	-	4	5	1	-	-	71
Colo.	64	42	5	33	26	6	1	2	21
N. Mex.	26	35	6	58	81	2	2	-	4
Ariz.	270	496	5	237	188	2	6	-	34
Utah	6	11	10	40	32	3	-	-	13
Nev.	67	101	-	54	51	-	1	-	8
PACIFIC	2,115	3,167	27	3,624	3,738	5	99	3	360
Wash.	126	303	3	215	216	2	6	2	1
Oreg.	64	107	-	88	97	2	4	1	5
Calif.	1,917	2,726	24	3,127	3,251	1	86	-	350
Alaska	4	16	-	46	41	-	-	-	3
Hawaii	4	15	-	148	133	-	3	-	1
Guam	-	2	-	-	34	-	-	-	-
P.R.	319	233	-	167	66	-	9	-	52
V.I.	83	10	-	2	4	-	-	-	-
Amer. Samoa	-	-	-	-	14	-	-	-	-
C.N.M.I.	-	3	-	-	46	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending September 28, 1991 (39th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	516	376	84	36	9	9	42
Boston, Mass.	149	97	27	18	2	3	12
Bridgeport, Conn.	25	20	3	1	1	-	3
Cambridge, Mass.	14	12	1	1	-	-	2
Fall River, Mass.	23	16	6	1	-	-	2
Hartford, Conn.	39	30	3	4	-	2	2
Lowell, Mass.	19	16	2	1	-	-	-
Lynn, Mass.	9	7	2	-	-	-	-
New Bedford, Mass.	26	19	6	1	-	-	1
New Haven, Conn.	38	24	7	3	3	1	3
Providence, R.I.	42	29	10	2	1	-	2
Somerville, Mass.	7	5	2	-	-	-	1
Springfield, Mass.	41	32	5	1	1	2	6
Waterbury, Conn.	37	29	6	2	-	-	3
Worcester, Mass.	47	40	4	1	1	1	5
MID. ATLANTIC	2,533	1,632	461	280	77	82	116
Albany, N.Y.	48	35	7	3	1	2	4
Allentown, Pa.	18	16	2	-	-	-	-
Buffalo, N.Y.	100	70	20	6	1	3	4
Camden, N.J.	41	25	5	5	1	5	1
Elizabeth, N.J.	41	27	10	4	-	-	3
Erie, Pa.†	42	30	7	3	1	1	3
Jersey City, N.J.	55	32	11	8	1	3	1
New York City, N.Y.	1,154	717	206	160	35	36	43
Newark, N.J.	59	25	17	12	4	1	1
Paterson, N.J.	23	10	6	3	1	3	1
Philadelphia, Pa.	493	300	103	55	16	18	21
Pittsburgh, Pa.†	62	47	11	2	2	-	6
Reading, Pa.	46	35	7	3	-	1	7
Rochester, N.Y.	125	95	15	7	6	2	7
Schenectady, N.Y.	19	18	1	-	-	-	2
Scranton, Pa.†	31	24	2	2	1	2	1
Syracuse, N.Y.	101	70	18	3	7	3	4
Trenton, N.J.	22	17	5	-	-	-	3
Utica, N.Y.	21	16	2	1	-	2	3
Yonkers, N.Y.	32	23	6	3	-	-	1
E.N. CENTRAL	2,037	1,243	381	224	121	68	96
Akron, Ohio	48	32	10	2	2	2	-
Canton, Ohio	40	26	9	2	-	3	2
Chicago, Ill.	479	192	89	114	69	15	21
Cincinnati, Ohio	116	78	23	9	2	4	17
Cleveland, Ohio	123	77	26	9	10	1	1
Columbus, Ohio	199	129	35	16	10	9	3
Dayton, Ohio	119	84	22	10	1	2	5
Detroit, Mich.	224	127	47	30	10	10	4
Evansville, Ind.	43	33	5	5	-	-	1
Fort Wayne, Ind.	69	49	10	5	3	2	5
Gary, Ind.	12	4	5	1	1	1	-
Grand Rapids, Mich.	48	40	7	-	-	1	1
Indianapolis, Ind.	163	109	35	8	6	5	8
Madison, Wis.	47	27	11	4	1	4	2
Milwaukee, Wis.	114	86	20	4	2	2	12
Peoria, Ill.	44	34	7	1	-	2	5
Rockford, Ill.	48	36	10	1	1	-	4
South Bend, Ind.	43	31	5	1	1	5	3
Toledo, Ohio§	U	U	U	U	U	U	U
Youngstown, Ohio	58	49	5	2	2	-	2
W.N. CENTRAL	729	501	122	65	18	23	35
Des Moines, Iowa	55	43	9	1	1	1	4
Duluth, Minn.	29	26	2	-	1	-	2
Kansas City, Kans.	23	19	3	1	-	-	-
Kansas City, Mo.	98	65	21	8	2	2	5
Lincoln, Nebr.	36	28	5	3	-	-	2
Minneapolis, Minn.	194	132	31	18	6	7	14
Omaha, Nebr.	69	45	17	5	1	1	4
St. Louis, Mo.	126	85	16	14	3	8	2
St. Paul, Minn.	52	24	9	13	4	2	2
Wichita, Kans.	47	34	9	2	-	2	-
S. ATLANTIC	1,251	750	262	150	49	40	40
Atlanta, Ga.	158	77	30	34	11	6	2
Baltimore, Md.	242	150	53	29	5	5	9
Charlotte, N.C.	65	42	11	4	5	3	1
Jacksonville, Fla.	117	68	25	8	10	6	6
Miami, Fla.	126	73	35	11	3	4	4
Norfolk, Va.	52	28	14	5	2	3	3
Richmond, Va.	79	46	18	10	2	3	4
Savannah, Ga.	45	32	9	2	1	1	-
St. Petersburg, Fla.	83	60	11	9	1	2	-
Tampa, Fla.	117	80	27	7	2	1	5
Washington, D.C.	136	74	22	27	7	6	6
Wilmington, Del.	31	20	7	4	-	-	-
E.S. CENTRAL	735	457	170	62	22	24	50
Birmingham, Ala.	107	65	31	5	2	4	2
Chattanooga, Tenn.	63	44	10	7	2	-	7
Knoxville, Tenn.	57	33	17	5	-	2	2
Louisville, Ky.§	U	U	U	U	U	U	U
Memphis, Tenn.	230	140	59	15	6	10	13
Mobile, Ala.	112	69	21	13	4	5	11
Montgomery, Ala.	51	37	7	2	3	2	3
Nashville, Tenn.	115	69	25	15	5	1	12
W.S. CENTRAL	1,396	835	312	159	45	44	78
Austin, Tex.	69	43	18	6	-	2	5
Baton Rouge, La.	32	15	10	5	-	2	2
Corpus Christi, Tex.	31	24	4	-	2	1	2
Dallas, Tex.	220	117	55	37	4	7	3
El Paso, Tex.	53	30	14	5	2	2	4
Ft. Worth, Tex.	90	68	13	3	5	-	3
Houston, Tex.	375	200	93	56	11	15	33
Little Rock, Ark.	64	38	15	7	2	2	3
New Orleans, La.	131	85	27	9	6	4	-
San Antonio, Tex.	178	116	34	23	2	3	13
Shreveport, La.	87	57	15	3	7	5	6
Tulsa, Okla.	66	42	14	5	4	1	4
MOUNTAIN	681	434	153	53	19	22	35
Albuquerque, N.M.	77	57	16	2	2	-	3
Colo. Springs, Colo.	40	26	10	2	1	1	4
Denver, Colo.	107	67	20	12	2	6	15
Las Vegas, Nev.	117	67	34	11	3	2	2
Ogden, Utah	24	19	2	1	-	2	4
Phoenix, Ariz.	159	86	42	15	6	10	1
Pueblo, Colo.	23	17	3	2	1	-	1
Salt Lake City, Utah	46	31	8	3	3	1	3
Tucson, Ariz.	88	64	18	5	1	-	2
PACIFIC	1,672	1,079	288	189	64	48	82
Berkeley, Calif.	18	11	3	2	2	-	-
Fresno, Calif.	71	46	14	6	3	2	3
Glendale, Calif.	13	11	-	2	-	-	-
Honolulu, Hawaii	85	56	13	9	2	5	7
Long Beach, Calif.	82	57	14	7	2	2	5
Los Angeles, Calif.	314	186	55	39	23	8	15
Oakland, Calif.§	U	U	U	U	U	U	U
Pasadena, Calif.	32	21	3	4	2	2	1
Portland, Oreg.	122	77	22	13	6	4	6
Sacramento, Calif.	152	99	23	18	7	5	11
San Diego, Calif.	197	123	30	30	6	7	11
San Francisco, Calif.	163	107	33	17	3	3	9
San Jose, Calif.	159	105	28	19	3	4	7
Seattle, Wash.	145	98	28	10	4	5	2
Spokane, Wash.	50	35	9	6	-	-	3
Tacoma, Wash.	69	47	13	7	1	1	2
TOTAL	11,550††	7,307	2,233	1,218	424	360	574

*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.

§Report for this week is unavailable (U).

HIV Counseling and Testing — Continued

persons with undetected HIV infection receive appropriate CT, public health priorities should focus on increasing the number of persons, especially those engaging in risk behaviors, who are tested and the number who receive the full range of recommended CT, referral, and partner-notification services. HIV CT services should continue to expand to settings such as tuberculosis, STD, and drug-treatment clinics (Table 1). Public health programs should attempt to maximize the proportion of persons at risk who 1) are offered and receive pretest counseling, including risk assessment; 2) accept and receive HIV-antibody testing; 3) return for HIV-antibody test results; 4) are offered and receive posttest counseling; 5) if infected, participate in partner notification; and 6) if infected, are referred to and receive further medical and prevention services.

References

1. Bureau of the Census. Data book: state and metropolitan area—regions, divisions, and states. Washington, DC: US Department of Commerce, Bureau of the Census, May 1983:509.
2. CDC. HIV/AIDS surveillance. Atlanta: US Department of Health and Human Services, Public Health Service, January 1991:14–5.
3. CDC. CTS client record database: 1990 annual report. Atlanta: US Department of Health and Human Services, Public Health Service, 1991.
4. Cates W Jr, Handsfield HH. HIV counseling and testing: does it work? Am J Public Health 1988;78:1533–4.
5. Stempel RR, Moss AR. A review of studies of behavioral response to HIV-antibody testing among gay men [Poster session]. V International Conference on AIDS. Montreal, June 4–9, 1989:730.
6. Anderson JE, Hardy AM, Cahill K, Aral SO. HIV counseling and testing in the U.S.: who is being reached and who isn't? [Abstract]. VII International Conference on AIDS, Florence, Italy, June 16–21, 1991;1:382.
7. CDC. Estimates of HIV prevalence and projected AIDS cases: summary of a workshop, October 31–November 1, 1989. MMWR 1990;39:110–2,117–9.

Nosocomial Infection and Pseudoinfection from Contaminated Endoscopes and Bronchoscopes — Wisconsin and Missouri

Flexible fiber-optic endoscopes are widely used in the United States for diagnostic and therapeutic procedures. Between uses, endoscopes should be cleaned and disinfected either manually or by using automated machines. However, outbreaks have occurred among patients exposed to contaminated endoscopes or to inadequately disinfected bronchoscopes (*1–4*). This report summarizes one outbreak of nosocomially acquired infection (Wisconsin) and one of pseudoinfection (Missouri) linked to endoscopes contaminated during cleaning and disinfection by automated reprocessing machines.

Wisconsin

From October 1986 through June 1988, at a hospital in Wisconsin, *Pseudomonas aeruginosa* colonization or infection of the biliary tract, respiratory tract, or bloodstream occurred in 16 (6.7%) of 240 patients undergoing endoscopic retrograde cholangiopancreatography (ERCP) and in 99 (8.9%) of 1109 patients undergoing other upper gastrointestinal (UGI) endoscopic procedures. The endoscopes were routinely

Nosocomial Infection — Continued

reprocessed using an Olympus EW-10* automated reprocessing machine that flushed with a detergent solution, disinfected with one of two liquid chemical germicides (2% glutaraldehyde; 2% glutaraldehyde/7.05% phenol/1.2% sodium phenate diluted 1:16 in tap water), and rinsed with tap water.

An investigation performed by the hospital in June 1988 indicated that a thick biofilm of *P. aeruginosa* had formed in the detergent holding tank, inlet water hose, and air vents of the automated machine. Attempts to disinfect the machine by the manufacturer's instructions using commercial preparations of glutaraldehyde were unsuccessful.

P. aeruginosa serotype 10 was the predominant serotype recovered from the automated machine, from available isolates from patients with postendoscopy colonization or infection, and from endoscopes that had been sampled after disinfection in the machine. Molecular subtyping (by immunoblot of whole-cell lysates and by pulsed-field electrophoresis of *Dra* I endonuclease-digested DNA) confirmed that the *P. aeruginosa* serotype 10 isolates recovered from the reprocessing machine and from infected patients were identical.

In July 1988, hospital personnel began manually rinsing machine-washed endoscope channels and external surfaces with 70% isopropyl alcohol and drying the channels and surfaces with forced air for 10–20 minutes. When compared with rates of post-UGI endoscopy *P. aeruginosa* colonization or infection for October 1986–June 1988, rates for July 1988–December 1989 were lower (one [0.6%] of 175 patients undergoing ERCP [$p<0.01$] and 27 [3.3%] of 821 patients undergoing other UGI endoscopies [$p<0.01$]), although the automated machine remained colonized with *P. aeruginosa*. No additional cases have occurred.

Missouri

In August 1990, infection-control personnel in a hospital in Missouri noted an increase in the number of *Mycobacterium chelonae* isolates (20 isolates during January–August 1990, compared with a median of six isolates per year during 1984–1989).

Microbiology and patient records from January 1, 1984, through September 25, 1990, were reviewed. From January 1, 1984, through December 4, 1989 (defined as the baseline period), 5200 patients underwent bronchoscopy or endoscopy on one surgical service; five (0.1%) of these patients had respiratory or biliary cultures positive for *M. chelonae*. In comparison, from December 5, 1989 (when the first case in a cluster of cases with a unique strain of *M. chelonae* was identified), through September 25, 1990, 1270 patients on the same service underwent bronchoscopy or endoscopy; 14 (1.1%) of these patients had respiratory or biliary cultures positive for *M. chelonae*. However, none of the 14 patients had evidence of invasive *M. chelonae* infection, and none had additional cultures positive for *M. chelonae* when bronchoscopy was repeated, suggesting the occurrence of pseudoinfection.

A phenotypically unique strain of *M. chelonae* subsp. *abscessus*, highly resistant to cefoxitin (minimum inhibitory concentration [MIC] >256 μg/mL), was recovered from all 14 patients with bronchoscopic- or endoscopic-related pseudoinfections and from the rinse water from the automated reprocessing machine. This strain differed from 13 control isolates of *M. chelonae* obtained from patients elsewhere in the hospital (*5*).

*Use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Nosocomial Infection — Continued

Beginning in May 1988, bronchoscopes and endoscopes from the surgical service had been reprocessed after each use with a Keymed Auto Disinfector 2 (manufactured by Olympus Corporation), which washed the endoscopes with a detergent solution, disinfected with 2.0% glutaraldehyde, and rinsed with tap water. In addition, the bronchoscopes were reprocessed each night with a standard ethylene oxide gas sterilization cycle. In September 1990, following recognition of the increased rate of pseudoinfection, the endoscope reprocessing procedure was modified: sterile water was substituted for tap water in the machine rinse cycle, the disinfection cycle was increased from 10 to 20 minutes, rinsing was done manually with 70% alcohol, and forced air was used for drying. No further pseudoinfections occurred until December 1990, when a different strain of *M. chelonae* was isolated from bronchial washings of two patients undergoing bronchoscopy on the same service; however, the organism was not isolated from the reprocessing machine. Since use of the automated reprocessing machine was discontinued in February 1991, *M. chelonae* has not been isolated from patients on this service.

Reported by: CJ Alvarado, MS, SM Stolz, MS, DG Maki, MD, Univ of Wisconsin Hospital and Clinics, Madison, Wisconsin. V Fraser, MD, M Jones, S O'Rourke, Barnes Hospital, Saint Louis, Missouri. RJ Wallace, Jr, MD, Univ of Texas Health Science Center, Tyler, Texas. Center for Devices and Radiologic Health, Food and Drug Administration. Hospital Infections Program, National Center for Infectious Diseases, CDC.

Editorial Note: In the United States, use of automated endoscope reprocessing machines has increased—in part because of the complex and time-consuming process of manually cleaning and disinfecting endoscopes. CDC has previously recommended that diagnostic and therapeutic devices that contact mucous membranes during use (e.g., endoscopes and bronchoscopes) should be either sterilized or subjected to high-level disinfection (*6*). However, the findings in this report emphasize the potential for some automated endoscope reprocessing machines to become colonized with heterotrophic organisms such as *P. aeruginosa* and *M. chelonae*. Such colonization may then result in nosocomial infections or pseudoinfections in patients undergoing endoscopic procedures. Contaminated endoscopes, particularly when used to perform invasive procedures such as mucosal biopsies or ERCP, have been associated with a variety of problems, including potentially life-threatening infections such as septicemia or cholangitis (*7–11*).

In both hospitals described in this report, the automated reprocessing machines were identified as the source of contamination. This contamination was present in multiple sites, including the detergent and water holding tanks, water hoses, and air vents. At least three factors contributed to the problem: 1) the design of the machines hampered their disassembly, cleaning, and decontamination; 2) the detergent, disinfectant, and tap water were reused several times in the Auto Disinfector 2; and 3) reservoirs and tubing of both the EW-10 and Auto Disinfector 2 remained moist or filled with fluid for extended periods, providing several potential sources for contamination before disinfection or for recontamination during rinsing. Repeated attempts to eliminate the microbial contamination from internal tubing and reservoirs of the reprocessing machines were unsuccessful.

In April 1990, at the request of the Food and Drug Administration (FDA), Olympus Corporation mailed a medical device safety alert to all consignees of EW-10 and of a similar, but more recent, model machine (EW-20). The alert recommended that all endoscope channels be rinsed with 70% isopropyl alcohol and suctioned with forced air after machine reprocessing. Although terminal alcohol rinsing of endoscopes

Nosocomial Infection — Continued

followed by forced-air drying was initiated at both hospitals, this procedure has not been rigorously evaluated and does not ensure elimination of microbial contamination originating from the reprocessing machine. In addition, in May 1990, FDA classified Olympus' action as a Class II recall of the EW-10 and EW-20 machines (i.e., Olympus has agreed that no models of this category of machine will be sold until the contamination problem has been resolved and FDA has granted approval).

To assist CDC and FDA in determining the extent of contamination for flexible fiber-optic endoscopes, physicians are asked to report episodes of endoscopy-related colonization/infection or pseudoinfection in patients undergoing gastrointestinal endoscopy or bronchoscopy through state health departments to the Epidemiology Branch, Hospital Infections Program, National Center for Infectious Diseases, Mail-stop A-07, CDC, 1600 Clifton Road, NE, Atlanta, GA 30333; telephone (404) 639-1550.

References

1. Vennes JA. Infectious complications of gastrointestinal endoscopy. Dig Dis Sci 1981;26 (suppl):605–45.
2. Nelson KE, Larson PA, Schroufngel DE, Jackson J. Transmission of tuberculosis by flexible fiberoptic bronchoscopes. Am Rev Respir Dis 1983;127:97–100.
3. Wheeler PW, Lancaster D, Kaiser AB. Bronchopulmonary cross-colonization and infection related to mycobacterial contamination of suction valves of bronchoscopes. J Infect Dis 1989;159:954–8.
4. Alvarado CJ, Stolz SM, Maki DG. Nosocomial infections from contaminated endoscopes: a flawed automated endoscope washer. Am J Med 1991 (in press).
5. Fraser V, Jones M, Murray P, Medoff G, Zhang X, Wallace RJ Jr. Nosocomial respiratory outbreak of *M. chelonae* linked to an automated disinfection machine [Abstract]. In: Program and abstracts of the 91st annual meeting of the American Society for Microbiology. Washington, DC: American Society for Microbiology, 1991:425.
6. Garner JS, Favero MS. Guideline for handwashing and hospital environmental control, 1985. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, 1985; HHS publication no. 99-1117.
7. Elson CO, Hattori K, Blackstone MO. Polymicrobial sepsis following endoscopic retrograde cholangiopancreatography. Gastroenterology 1975;69:507–10.
8. Parker HW, Geenan JE, Bjork JT, Stewart ET. A prospective analysis of fever and bacteremia following ERCP. Gastrointest Endosc 1979;25:102–3.
9. Classen DC, Jacobson JA, Burke JP, Jacobson JT, Evans RS. Serious pseudomonas infections associated with endoscopic retrograde cholangiopancreatography. Am J Med 1988;84:590–6.
10. Favero MS. Strategies for disinfection and sterilization of endoscopes: the gap between basic principles and actual practice. Infect Control Hosp Epidemiol 1991;12:279–81.
11. Axon ATR, Cowen AE, Bond WW, Tandon RK, Fleisher DE, Bottrill PM. Disinfection and endoscopy: working party report to the World Congresses of Gastroenterology, Sydney 1990. Journal of Gastroenterology and Hepatology 1991;6:23–47.

Notice to Readers

Public Health Leadership Institute

The CDC/University of California Public Health Leadership Institute is a 1-year program designed to strengthen the U.S. public health system by enhancing the leadership capacities of city, county, and state public health officials. Major themes for the institute are leadership and practice, technologic change, communications and information, political and social change, and creativity in public health.

Fifty state and local senior health officials will be selected to participate in the institute. Each scholar will conduct a personal management and leadership

Notice to Readers — Continued

assessment, use self-study packets, participate in interactive computer conferences with other scholars, complete a learning project, and attend an on-site program to be held March 8–13, 1992, in Santa Cruz, California.

The institute is a collaborative effort between CDC and the Western Consortium for Public Health, which represents the Schools of Public Health at two University of California campuses (Los Angeles and Berkeley) and at San Diego State University. It is being developed under a cooperative agreement between CDC's Public Health Practice Program Office and the Western Consortium.

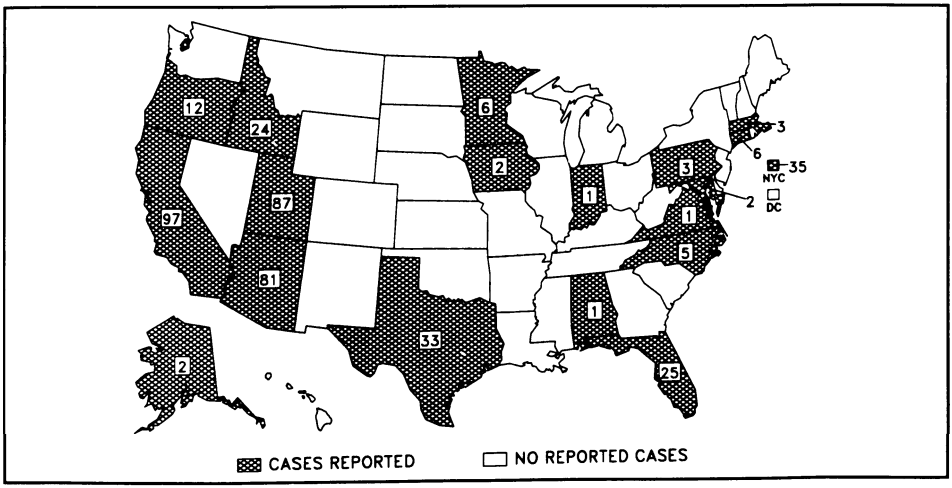
Applications are being accepted from senior health officials of state and local public health agencies to participate as scholars. Applications are due October 11, 1991. Scholars will be selected by the end of October. Additional information and applications are available from the Director, Public Health Leadership Institute, telephone (916) 448-7891, or CDC's Division of Public Health Systems, Public Health Practice Program Office, telephone (404) 639-1967.

Errata: Vol. 40, No. 32 and No. 37

In the article "Update: Cholera—Western Hemisphere, and Recommendations for Treatment of Cholera," the city given for Jianas Brothers (on page 564, the seventh line of the first paragraph under the subheading "Treatment") should be Kansas City, Missouri.

In the article "Infant Mortality—United States, 1988," the second clause of the last sentence of the fourth paragraph on page 644 should read: ". . . the rate for black infants was *11.5* per 1000 live births, compared with *11.7* in 1987."

Reported cases of measles, by state — United States, weeks 35–38, 1991



The *Morbidity and Mortality Weekly Report* (*MMWR*) Series is prepared by the Centers for Disease Control and is available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 783-3238.

The data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control, Atlanta, GA 30333; telephone (404) 332-4555.

☆U.S. Government Printing Office: 1992-631-123/42036 Region IV