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Emerging Infectious Diseases

Update: Outbreak of Hantavirus Infection — Southwestern United States, 1993

Since May 1993, the New Mexico Department of Health, the Arizona Department of Health Services, the Colorado Department of Health, the Utah Department of Health, the Indian Health Service (IHS), and CDC, with the assistance of the Navajo Nation Division of Health, have been investigating an outbreak of acute illness characterized by a prodrome most commonly including fever, myalgias, headache, and cough, followed rapidly by respiratory failure (*1*). Preliminary laboratory findings have suggested this outbreak is associated with infection with a hantavirus or a closely related agent. This report updates the ongoing investigation of this outbreak.

Because the findings in this investigation have suggested a role for hantavirus infection, the surveillance case definition has been revised. A confirmed case is now defined as unexplained adult respiratory distress syndrome (ARDS) or acute bilateral pulmonary interstitial infiltrates and/or prodromal symptoms in a person who had onset during 1993 and who has laboratory evidence of recent hantavirus infection. Through June 15, seven confirmed cases of hantavirus illness had been identified (Figure 1); four of these case-patients have died. Of the seven case-patients, four were from New Mexico, two from Arizona, and one from Colorado. Similar illnesses in an additional 22 persons, 12 of whom died, are being investigated.

Further laboratory studies have demonstrated the presence of hantavirus genome in autopsy specimens from two case-patients. Hantavirus-specific nucleotide sequences were amplified from specimens of organs using the polymerase chain reaction (PCR).

To characterize the preexistent seroprevalence of hantavirus antibodies among some persons in the area of the outbreak, serum samples collected in 1991 and 1992 as part of the Navajo Health and Nutrition Survey (CDC, unpublished data, 1991) were tested. Of samples obtained from 270 persons, antibodies to hantaviruses were present in specimens from three (1%) persons.

During the week of June 6, rodents were collected from peridomestic settings of several case-patients. Of 42 rodents tested, 12 (29%) had serologic evidence of hantavirus infection; all 12 were of the species *Peromyscus maniculatus* (deer mouse).

Hantavirus Infection —Continued

Since June 4, ribavirin has been available through an investigational new drug (IND) protocol to treat patients associated with this outbreak who have possible hantavirus infection. Supplies of intravenous ribavirin have been placed in IHS and other facilities in the four-corners region of Arizona, Colorado, New Mexico, and Utah. Five patients have been enrolled in the IND protocol through June 15.

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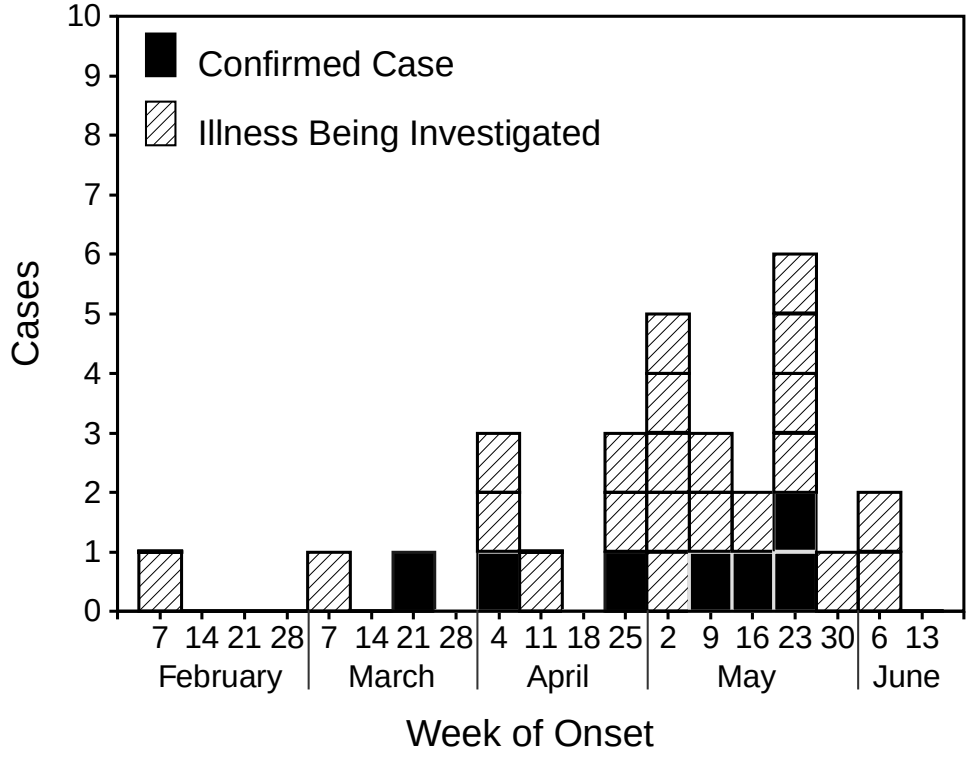
Editorial Note: Laboratory evidence continues to support an etiologic role of a hantavirus in the current outbreak of acute illness in the southwestern United States. The low prevalence of hantavirus antibodies in the recently collected nutritional survey

FIGURE 1. Number of confirmed cases of hantavirus illness and number of similar illnesses being investigated, by week of onset — Arizona, Colorado, New Mexico, and Utah, February 7–June 16, 1993



Hantavirus Infection — Continued

specimens provides preliminary evidence that human hantavirus infections have occurred, but have been uncommon, in this population. The presence of hantavirus antibodies in the *Peromyscus* species will require further study to determine whether they were induced by the same virus associated with human infections (*2,3*).

In one controlled study, intravenous administration of the antiviral drug ribavirin was effective in treating severe cases of Hantaan virus infection when administered early in the course of illness (*4*). However, its effectiveness in the treatment of patients in the current outbreak has yet to be demonstrated; careful hemodynamic management and respiratory support are critical for possible case-patients. Patients eligible to receive ribavirin include previously healthy persons who reside in or have traveled to Arizona, Colorado, New Mexico, or Utah and who have acute (duration <7 days) unexplained ARDS or acute respiratory illness with bilateral pulmonary infiltrates on chest radiograph. Physicians wishing to enroll patients in the IND protocol should call, in New Mexico, (505) 843-2111; in Arizona, (602) 433-0215; or CDC, telephone (404) 639-3311.

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Effectiveness in Disease and Injury Prevention

Economic Impact of Motor-Vehicle Crashes — United States, 1990

Injuries resulting from motor-vehicle crashes are the leading cause of death for persons of every age from 6 through 33 years (*1*) and have a large economic impact on the general population. This report summarizes an analysis by the National Highway Traffic Safety Administration (NHTSA) of costs for total and alcohol-related motor-vehicle crashes during 1990 (*2*) and estimates the economic impact for police-reported and unreported crashes.

Fatal crash data were obtained from NHTSA's Fatal Accident Reporting System, and nonfatal crash data from NHTSA's National Accident Sampling System and the Federal Highway Administration (*2*). Data for injuries not reported to police were based on a trend-adjusted comparison of police-reported data with data from the National Health Interview Survey. Cost estimates were based on data from the Federal Highway Administration (*3*) adjusted to 1990 dollars and on 1990 estimates of property damage, injuries, and fatalities. Costs for motor-vehicle crashes included direct costs (e.g., medical care, property damage, and insurance administration) and indirect costs (e.g., loss of earnings and lost household productivity). Injury costs were based on the maximum injury sustained (MAIS) using the Abbreviated Injury Scale—a standardized system on a scale of 1 (least severe) to 6 (most severe) for categorizing injury type and quantifying severity based on immediate threat to life (*4*). Noninjury

Motor-Vehicle Crashes — Continued

costs (e.g., property damage and travel delay on roadways) were included to provide a comprehensive estimate of crash costs. Sources for estimates included special cost studies (*5*), the Detailed Claims Information file of the National Council on Compensation Insurance, police and emergency services reports, Federal Highway Administration and Bureau of Motor Carrier Safety data, claims data from the Insurance Information Institute, and average hourly wage and fringe benefits data from the U.S. Department of Labor.

Motor-vehicle crashes during 1990 accounted for 44,531 fatalities, 5.4 million nonfatal injuries, and 28 million damaged vehicles, and an estimated total cost of $137.5 billion (Table 1). Major sources for cost were property damage ($45.7 billion [33%]), productivity losses in the workplace ($39.8 billion [29%]), medical-care expenses (13.9 billion [10%]), and losses related to household productivity ($10.8 billion [8%]).

The greatest unit cost was associated with fatalities*—approximately $702,000 per fatality; per-person costs for the most critical nonfatal injuries (MAIS 5) were approximately $589,000—84% of the cost per fatality. The predominant cost component for fatalities was productivity losses at home and in the workplace from premature death (80%) (Figure 1). For MAIS 4–5 (severe and critical) injuries, the predominant costs were related to lifetime medical care (40%) (Figure 1).

In 1990, crashes that involved any alcohol (i.e., blood alcohol concentration [BAC] level ≥0.01 g/dL) cost $46.1 billion (Table 2) and represented approximately 33% of all economic costs attributed to motor-vehicle crashes. Of this amount, $37.5 billion (81%) reflected crashes in which a driver or pedestrian was legally intoxicated (i.e., a BAC of at least 0.10 g/dL in most states). Alcohol use was disproportionately involved in crashes associated with death or critical injury, accounting for an estimated 50% of total incidence and 55% of total cost for these crashes. In contrast, alcohol was involved in approximately 15% of noninjury-related crashes.

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Editorial Note: The economic impact of motor-vehicle crashes during 1990 was approximately 2.5% of the gross domestic product in the United States. Although most motor-vehicle crashes involved no injury, crashes resulting in injuries and fatalities accounted for three fourths of all crash costs. Nearly 30% of the first-year medical costs of hospitalized persons injured in a motor-vehicle crash in the United States is paid by federal, state, and local government sources such as Medicaid and Medicare (*6*). Prevention of motor-vehicle crashes represents an opportunity for substantial reductions in health-care costs in the public and private sectors.

The economic costs of motor-vehicle crashes described in this report exceed other estimates (*5,7*) because they include property damage costs; costs related to uninjured occupants; consumer price increases; changes in the bases for calculating costs incurred in future years; legal/court, employer/workplace, and travel delay costs; and cost data from sources not previously available. In addition, the number of nonfatal injuries and crashes exceeded those reported annually by NHTSA (*8*) because they included estimates of unreported crashes; during 1990, approximately 22% of the

*Includes MAIS 6 injuries, which are so severe they are untreatable and virtually unsurvivable.

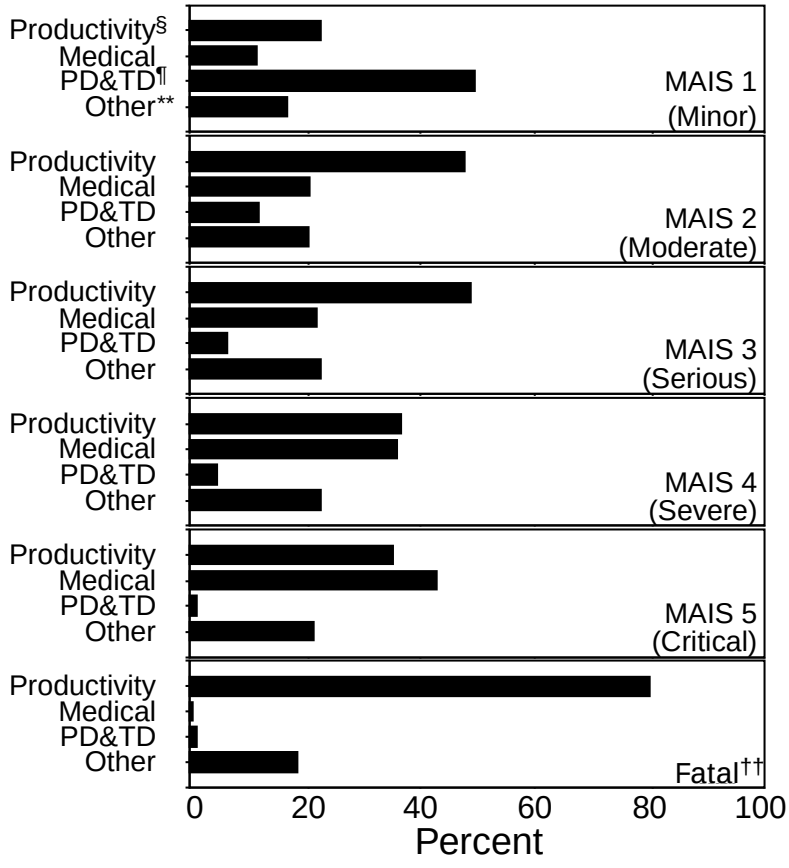
TABLE 1. Summary of costs* of motor-vehicle crashes, by cost category and injury severity level

Motor-Vehicle Crashes — Continued

5.4 million persons incurring nonfatal motor-vehicle injuries did not file a police report.

The need for more effective approaches to preventing motor-vehicle crashes is underscored by the large number of premature deaths and injuries resulting from crashes, the high rate of alcohol involvement, and the enormous economic impact on the general population. Public health strategies to prevent these costs include the development of new measures (e.g., crash-avoidance vehicle technology), more effective application of proven approaches (e.g., increasing occupant protection

FIGURE 1. Components and percentage of total motor-vehicle crash costs*, by injury severity level† — United States, 1990



*Costs were based on 1990 dollars, using a discount rate of 4% to convert future costs to current dollar costs.

†Injury costs were computed based on the maximum injury sustained (MAIS) using the Abbreviated Injury Scale—a standardized system for categorizing injury type and quantifying severity, based on immediate threat to life (*5*). Sources: nonfatal injuries—National Accident Sampling System (National Highway Traffic Safety Administration [NHTSA]) and Federal Highway Administration injury data; fatal injuries—Fatal Accident Reporting System (NHTSA).

§Includes market and household productivity losses.

¶Property damage and travel delay.

**Other costs comprise emergency services, premature funeral purchase, vocational rehabilitation, insurance administration, workplace disruption, and legal/court costs.

††Includes MAIS 6 injuries, which are so severe they are untreatable and virtually unsurvivable.

TABLE 2. Incidence and cost* of motor-vehicle crashes, by injury severity level† and blood alcohol concentration (BAC) — United States, 1990

Injury severity§	BAC=0.00			0.01%≤BAC≤0.09%			BAC≥0.10%			All cases	
	Incidence	Cost	(%)	Incidence	Cost	(%)	Incidence	Cost	(%)	Incidence	Cost§§
PDO¶	20,351,065	$30,140	(84.7)	335,530	$ 497	(1.4)	3,349,149	$ 4,960	(13.9)	**24,035,744**	**$ 35,597**
Uninjured**	1,197,795	1,483	(85.9)	47,831	59	(3.4)	148,162	183	(10.6)	**1,393,788**	**$ 1,726**
MAIS 1	3,721,862	22,711	(80.0)	183,168	1,160	(4.1)	712,198	4,503	(15.9)	**4,617,228**	**$ 28,373**
MAIS 2	358,471	9,313	(61.3)	38,957	1,103	(7.3)	169,422	4,779	(31.5)	**566,850**	**$ 15,196**
MAIS 3	107,165	8,707	(57.4)	16,988	1,508	(9.9)	55,957	4,949	(32.6)	**180,110**	**$ 15,163**
MAIS 4	13,512	2,089	(60.6)	1,608	266	(7.7)	6,636	1,094	(31.7)	**21,756**	**$ 3,449**
MAIS 5	5,715	3,248	(48.4)	1,161	710	(10.6)	4,510	2,750	(41.0)	**11,386**	**$ 6,707**
Fatal††	22,447	13,671	(43.7)	4,413	3,333	(10.7)	17,671	14,269	(45.6)	**44,531**	**$ 31,273**
Total§§		**$91,362**	**(66.5)**		**$8,635**	**(6.3)**		**$37,486**	**(27.3)**		**$137,483**

*Dollar amounts are in millions of dollars and represent 1990 dollars, using a discount rate of 4% to convert future costs to current dollar costs.
†Injury costs were computed based on the maximum injury sustained (MAIS) using the Abbreviated Injury Scale—a standardized system for categorizing injury type and quantifying severity based on immediate threat to life (*5*). MAIS 1 represents minor injury; MAIS 2, moderate injury; MAIS 3, serious injury; MAIS 4, severe injury; and MAIS 5, critical injury.
§Sources: nonfatal injuries—National Accident Sampling System (National Highway Traffic Safety Administration [NHTSA]) and Federal Highway Administration injury data; fatal injuries—Fatal Accident Reporting System (NHTSA).
¶Property damage only (i.e., damage to vehicles and roadways); no injuries.
**Uninjured occupants in a crash where at least one other person was injured.
††Includes MAIS 6 injuries, which are so severe they are untreatable and virtually unsurvivable.
§§Numbers may not add to totals because of rounding.

Motor-Vehicle Crashes — Continued

through use of safety belts, child safety seats, and air bags), and reduction of alcohol-impaired driving and other risky driving practices (*9,10*).

Further information on cost estimates of motor-vehicle crashes is available in *The Economic Cost of Motor Vehicle Crashes, 1990* (*2*). Copies are available through the Distribution Office, Room 6117, NHTSA, 400 7th Street, SW, Washington, DC 20590.

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HIV Prevention through Case Management for HIV-Infected Persons — Selected Sites, United States, 1989–1992

Transmission of human immunodeficiency virus (HIV) infection can be prevented through HIV-prevention case management—a one-on-one client service specifically designed to assist HIV-infected persons in receiving services that will prevent or reduce behaviors that result in further spread of the virus, delay the onset of symptomatic HIV disease, and improve the client's health status (*1*). This approach enables HIV-infected persons to enter a stable, ongoing medical-care system and supports prevention goals by providing multiple opportunities to provide risk-reduction information and to reinforce safer behaviors. This report summarizes an assessment of HIV-prevention case-management systems in three community health centers (CHCs) during 1989–1992 and provides information regarding self-reported changes in sexual risk behaviors of HIV-seropositive clients.

From October 1, 1989, through September 30, 1992, CDC and the Health Resources and Services Administration funded three CHCs to provide integrated HIV-prevention

Case Management — Continued

and early intervention services within existing primary health-care programs. Sites were selected in Miami; New York City; and Newark, New Jersey, because those cities had high annual acquired immunodeficiency syndrome (AIDS) incidence rates per 100,000 population from August 1988 through July 1989 (45.0, 63.0, and 52.3, respectively) (*2*) and because CHCs in those sites were providing health services to large numbers of racial/ethnic minorities, a population disproportionately affected by the HIV epidemic (*3*).

The risk-reduction programs of each of the three CHCs comprised the same standard components: HIV counseling and testing routinely offered to all persons and case-management services offered to HIV-seropositive persons. A follow-up visit (time 1) was scheduled for persons after they received HIV-test results and posttest counseling. During this visit, the case manager administered a standardized questionnaire about drug and alcohol use and sexual behaviors, provided additional risk-reduction counseling, and developed a care plan for necessary medical and psychosocial services. Four to 6 months after the first follow-up visit, clients were scheduled to meet with the case manager (time 2), and the behavioral questionnaire was administered again.

Five questions asked of clients at times 1 and 2 were analyzed: 1) "Have you had sex with anyone in the past 30 days?"; 2) "How many persons have you had sex with in the last 30 days?"; 3) "How many of these were new sexual partners (i.e., persons you have not had sex with before)?"; 4) "Did you have a regular (steady) partner during the past 30 days?"; and 5) "During the past 30 days, did you use condoms with your regular (steady) partner?"

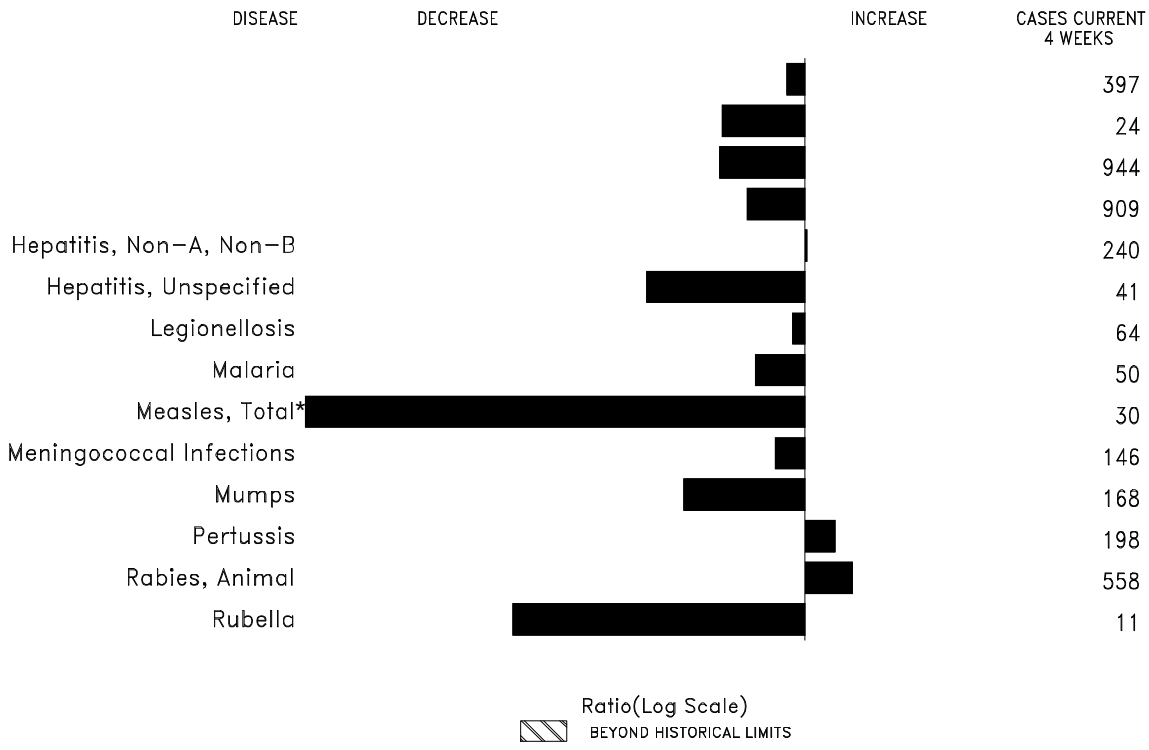
From October 1989 through June 1992, 755 HIV-seropositive clients received HIV-prevention case-management services in the three CHCs. However, because of difficulties in implementing a uniform data collection protocol, standardized data for study evaluation purposes are available only for the latter part of the project: December 1991–September 1992. Sixty-one clients completed the same questionnaire at both time 1 and time 2 (29 clients at the CHC in Miami; 20, in New York City; 12, in Newark). The median age of study group clients was 35 years. Study group clients were similar to other HIV-seropositive clients in age and sex, although a greater proportion of the study group clients were non-Hispanic blacks.

The median interval between posttest counseling and time 1 was 2.4 months (interquartile range: 0.3–7.6 months), reflecting the need for case managers to delay administration of the questionnaire because of personal or psychological circumstances for some clients. The median interval from time 1 to time 2 was 6.3 months (interquartile range: 5.5–7.1 months).

Of the 55 persons who responded to the question about whether they had had sex during the previous 30 days, 19 (35%) at time 1 stated that they had not, compared with 29 (53%) at time 2 ($p<0.05$, McNemar test matching client's responses at time 1 and time 2) (Figure 1). Of the 61 persons who answered the question regarding number of sex partners, 24 (39%) reported at time 1 that they had had no sex partners during the previous 30 days, compared with 35 (57%) respondents at time 2 ($p<0.05$, McNemar test matching client's responses at time 1 and time 2). From time 1 to time 2, client responses to questions about new sex partners, regular partners, and condom use with regular partners were not significantly different (Figure 1, page 455).

(Continued on page 455)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending June 12, 1993, with historical data — United States



*The large apparent decrease in reported cases of measles(total) reflects dramatic fluctuations in the historical baseline. (Ratio [log scale] for week twenty-three is 0.03096).

† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where thehatched 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 June 12, 1993 (23rd Week)

	Cum. 1993		Cum. 1993
AIDS*	51,608	Measles: imported	17
Anthrax	-	indigenous	108
Botulism: Foodborne	6	Plague	3
Infant	11	Poliomyelitis, Paralytic§	-
Other	2	Psittacosis	24
Brucellosis	32	Rabies, human	-
Cholera	11	Syphilis, primary & secondary	11,726
Congenital rubella syndrome	5	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	13
Encephalitis, post-infectious	79	Toxic shock syndrome	111
Gonorrhea	165,673	Trichinosis	7
Haemophilus influenzae (invasive disease)†	576	Tuberculosis	8,681
Hansen Disease	76	Tularemia	35
Leptospirosis	15	Typhoid fever	149
Lyme Disease	1,493	Typhus fever, tickborne (RMSF)	55

*Updated monthly; last update June 5, 1993.
†Of 527 cases of known age, 184 (35%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1993; 4 cases of suspected poliomyelitis were reported in 1992; 6 of the 9 suspected cases with onset in 1991 were confirmed; the confirmed cases were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending June 12, 1993, and June 6, 1992 (23rd Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	51,608	2,907	222	79	165,673	213,424	9,118	5,121	2,009	274	483	1,493
NEW ENGLAND	2,166	62	5	5	3,130	4,488	236	217	176	7	17	191
Maine	59	8	1	-	38	39	8	9	-	-	3	2
N.H.	63	7	-	2	20	56	13	43	167	1	2	20
Vt.	14	7	1	-	13	12	3	3	2	-	-	-
Mass.	1,188	32	3	3	1,266	1,643	131	120	4	6	9	42
R.I.	104	8	-	-	160	341	48	13	3	-	3	34
Conn.	738	-	-	-	1,633	2,397	33	29	-	-	-	93
MID. ATLANTIC	11,379	300	8	6	18,275	22,336	557	671	144	4	102	1,021
Upstate N.Y.	1,938	117	-	3	3,716	4,742	163	185	83	1	28	707
N.Y. City	6,197	104	1	-	4,260	7,577	177	121	1	-	3	3
N.J.	2,072	-	-	-	3,106	3,007	142	179	42	-	14	107
Pa.	1,172	79	7	3	7,193	7,010	75	186	18	3	57	204
E.N. CENTRAL	4,160	381	71	15	32,325	40,383	891	492	344	6	127	14
Ohio	662	112	25	3	8,850	12,269	139	105	28	-	69	10
Ind.	502	49	4	7	3,453	3,759	390	78	5	1	21	1
Ill.	1,442	84	15	-	11,134	12,832	248	94	19	2	4	1
Mich.	1,083	127	24	5	6,631	9,722	109	210	272	3	25	2
Wis.	471	9	3	-	2,257	1,801	5	5	20	-	8	-
W.N. CENTRAL	2,163	173	8	-	7,768	11,486	1,178	317	86	5	30	35
Minn.	431	45	5	-	320	1,318	190	31	3	4	1	4
Iowa	130	40	-	-	602	733	15	12	4	1	5	5
Mo.	1,270	33	-	-	4,850	6,288	771	236	61	-	8	7
N. Dak.	-	5	2	-	23	38	36	-	-	-	1	1
S. Dak.	20	7	1	-	123	79	10	-	-	-	-	-
Nebr.	100	2	-	-	170	607	109	7	9	-	12	1
Kans.	212	41	-	-	1,680	2,423	47	31	9	-	3	17
S. ATLANTIC	10,888	691	41	32	45,989	68,135	564	915	246	35	82	163
Del.	208	6	3	-	588	774	5	65	59	-	6	80
Md.	1,216	59	10	-	7,195	6,437	80	126	5	4	20	25
D.C.	548	19	-	-	2,500	3,330	2	14	-	-	12	2
Va.	731	73	12	3	5,077	8,014	60	66	19	11	2	18
W. Va.	38	6	7	-	257	404	3	17	14	-	1	2
N.C.	453	56	8	-	10,623	10,630	25	144	28	-	9	18
S.C.	673	4	-	-	4,429	5,113	7	18	-	1	10	1
Ga.	1,562	43	1	-	4,660	21,726	44	33	20	-	12	-
Fla.	5,459	425	-	29	10,660	11,707	338	432	101	19	10	17
E.S. CENTRAL	1,396	144	9	4	18,725	20,935	114	501	395	1	19	5
Ky.	161	58	4	4	1,974	2,162	62	42	4	-	7	2
Tenn.	528	20	4	-	5,818	6,792	19	407	383	-	10	1
Ala.	463	38	1	-	6,451	7,076	23	49	3	1	-	2
Miss.	244	28	-	-	4,482	4,905	10	3	5	-	2	-
W.S. CENTRAL	5,311	244	18	-	19,749	19,859	761	674	92	73	13	10
Ark.	227	14	-	-	3,733	3,696	24	28	2	-	-	1
La.	727	23	-	-	5,030	3,028	35	85	33	-	2	-
Okla.	423	-	3	-	1,645	2,053	45	108	21	6	8	5
Tex.	3,934	207	15	-	9,341	11,082	657	453	36	67	3	4
MOUNTAIN	2,599	171	11	3	4,771	5,343	1,839	259	141	46	45	3
Mont.	15	-	-	1	22	46	51	4	-	-	5	-
Idaho	43	5	-	-	74	55	91	21	-	1	1	-
Wyo.	28	3	-	-	43	22	10	12	45	-	5	2
Colo.	868	37	3	-	1,444	2,033	441	29	21	27	3	-
N. Mex.	212	32	3	2	441	408	148	110	44	1	2	-
Ariz.	881	63	4	-	1,773	1,804	634	40	9	7	8	-
Utah	185	6	1	-	154	106	434	19	18	10	7	1
Nev.	367	25	-	-	820	869	30	24	4	-	14	-
PACIFIC	11,546	741	51	14	14,941	20,459	2,978	1,075	385	97	48	51
Wash.	764	-	-	-	1,721	1,891	318	92	89	7	6	1
Oreg.	502	-	-	-	890	669	51	20	7	-	-	-
Calif.	10,149	696	48	14	11,892	17,344	2,195	949	283	88	37	49
Alaska	12	4	2	-	203	326	375	6	4	-	-	-
Hawaii	119	41	1	-	235	229	39	8	2	2	5	1
Guam	-	2	-	-	32	36	2	1	-	1	-	-
P.R.	1,561	27	-	-	202	72	34	152	21	2	-	-
V.I.	33	-	-	-	51	48	-	2	-	-	-	-
Amer. Samoa	-	-	-	-	12	17	10	-	-	-	-	-
C.N.M.I.	-	2	-	-	40	25	-	-	-	1	-	-

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

*Updated monthly; last update June 5, 1993.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending June 12, 1993, and June 6, 1992 (23rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	1993	Cum. 1993	Cum. 1992
UNITED STATES	400	18	108	-	17	1,823	1,236	67	836	57	1,132	675	-	91	98
NEW ENGLAND	29	-	45	-	4	22	74	-	5	29	292	61	-	1	5
Maine	1	-	-	-	-	-	4	-	-	1	8	2	-	1	-
N.H.	4	-	-	-	-	9	9	-	-	26	164	20	-	-	-
Vt.	1	-	30	-	1	-	4	-	-	-	42	-	-	-	-
Mass.	10	-	7	-	2	8	40	-	2	2	57	29	-	-	-
R.I.	2	-	-	-	1	1	1	-	2	-	2	-	-	-	4
Conn.	11	-	8	-	-	4	16	-	1	-	19	10	-	-	1
MID. ATLANTIC	77	-	6	-	2	200	153	-	59	6	177	72	-	27	11
Upstate N.Y.	26	-	-	-	1	103	68	-	21	6	73	23	-	3	8
N.Y. City	24	-	2	-	-	40	19	-	-	-	12	9	-	17	-
N.J.	19	-	4	-	1	52	20	-	8	-	21	18	-	6	2
Pa.	8	-	-	-	-	5	46	-	30	-	71	22	-	1	1
E.N. CENTRAL	26	-	-	-	-	31	168	8	126	1	161	50	-	2	7
Ohio	6	-	-	-	-	5	53	2	52	1	103	15	-	1	-
Ind.	4	-	-	-	-	19	27	1	3	-	24	12	-	-	-
Ill.	12	-	-	-	-	5	51	-	27	-	15	7	-	-	7
Mich.	4	-	-	-	-	1	36	5	44	-	16	1	-	1	-
Wis.	-	-	-	-	-	1	1	-	-	-	3	15	-	-	-
W.N. CENTRAL	12	-	1	-	2	6	77	-	24	1	80	47	-	1	5
Minn.	2	-	-	-	-	5	2	-	-	-	39	15	-	-	-
Iowa	1	-	-	-	-	1	15	-	7	-	1	1	-	-	-
Mo.	3	-	1	-	-	-	30	-	12	1	21	19	-	1	1
N. Dak.	2	-	-	-	-	-	3	-	4	-	2	7	-	-	-
S. Dak.	2	-	-	-	-	-	3	-	-	-	1	2	-	-	-
Nebr.	1	-	-	-	-	-	4	-	1	-	5	2	-	-	-
Kans.	1	-	-	-	2	-	20	-	-	-	11	1	-	-	4
S. ATLANTIC	111	1	20	-	3	102	248	42	271	5	112	60	-	7	7
Del.	1	-	3	-	-	1	10	-	4	-	1	-	-	2	-
Md.	12	-	-	-	2	10	21	5	47	1	36	12	-	1	4
D.C.	5	-	-	-	-	-	4	-	-	-	1	-	-	-	-
Va.	8	-	-	-	1	6	20	-	14	-	9	4	-	-	-
W. Va.	2	-	-	-	-	-	9	-	6	-	6	2	-	-	-
N.C.	59	-	-	-	-	24	43	37	156	2	20	14	-	-	-
S.C.	-	-	-	-	-	29	20	-	13	-	5	7	-	-	-
Ga.	2	-	-	-	-	-	57	-	9	-	5	6	-	-	-
Fla.	22	1	17	-	-	32	64	-	22	2	29	15	-	4	3
E.S. CENTRAL	9	1	1	-	-	418	78	1	32	4	47	12	-	-	1
Ky.	-	-	-	-	-	401	15	-	-	-	3	-	-	-	-
Tenn.	5	-	-	-	-	-	16	-	9	2	28	5	-	-	1
Ala.	2	1	1	-	-	-	28	1	18	2	15	7	-	-	-
Miss.	2	-	-	-	-	17	19	-	5	-	1	-	-	-	-
W.S. CENTRAL	11	-	1	-	-	951	101	10	116	-	31	92	-	12	6
Ark.	2	-	-	-	-	-	12	-	4	-	2	6	-	-	-
La.	-	-	1	-	-	-	23	-	10	-	5	-	-	1	-
Okla.	4	-	-	-	-	9	9	-	2	-	11	12	-	1	-
Tex.	5	-	-	-	-	942	57	10	100	-	13	74	-	10	6
MOUNTAIN	11	-	2	-	-	10	107	2	35	9	78	100	-	4	3
Mont.	1	-	-	-	-	-	8	-	-	-	-	1	-	-	-
Idaho	-	-	-	-	-	-	7	-	5	5	15	14	-	1	1
Wyo.	-	-	-	-	-	1	2	-	2	-	1	-	-	-	-
Colo.	7	-	2	-	-	9	15	-	8	1	26	20	-	-	-
N. Mex.	3	-	-	-	-	-	3	N	N	1	19	22	-	-	-
Ariz.	-	-	-	-	-	-	61	-	6	2	10	37	-	1	1
Utah	-	-	-	-	-	-	4	-	3	-	7	5	-	1	1
Nev.	-	-	-	-	-	-	7	2	11	-	-	1	-	1	-
PACIFIC	114	16	32	-	6	83	230	4	168	2	154	181	-	37	53
Wash.	12	-	-	-	-	10	34	-	8	1	18	47	-	-	6
Oreg.	3	-	-	-	-	-	19	N	N	1	2	13	-	1	2
Calif.	97	16	22	-	1	41	161	3	141	-	124	113	-	18	34
Alaska	-	-	-	-	-	9	9	-	5	-	3	-	-	1	-
Hawaii	2	-	10	-	5	23	7	1	14	-	7	8	-	17	11
Guam	1	U	1	U	-	10	1	U	6	U	-	-	U	-	1
P.R.	-	-	122	-	-	207	6	-	1	-	1	9	-	-	-
V.I.	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Amer. Samoa	-	-	1	-	-	-	-	-	-	-	2	6	-	-	-
C.N.M.I.	-	-	-	-	1	-	-	-	11	-	-	1	-	-	-

*For measles only, imported cases include 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 June 12, 1993, and June 6, 1992 (23rd Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	11,726	15,279	111	8,681	9,006	35	149	55	3,462
NEW ENGLAND	167	296	7	182	132	-	12	2	585
Maine	2	-	1	7	11	-	-	-	-
N.H.	5	23	2	1	-	-	-	-	29
Vt.	-	1	-	3	2	-	-	-	15
Mass.	83	144	3	108	64	-	10	2	205
R.I.	7	15	1	28	-	-	-	-	-
Conn.	70	113	-	35	55	-	2	-	336
MID. ATLANTIC	1,122	2,151	22	1,924	2,148	-	43	4	1,274
Upstate N.Y.	101	182	11	170	291	-	8	1	937
N.Y. City	541	1,154	1	1,168	1,225	-	26	-	-
N.J.	163	308	-	296	361	-	6	2	192
Pa.	317	507	10	290	271	-	3	1	145
E.N. CENTRAL	1,866	2,226	36	906	899	3	13	3	29
Ohio	523	299	15	130	145	1	5	2	3
Ind.	168	108	1	100	77	1	1	-	-
Ill.	710	1,016	5	452	444	-	4	1	4
Mich.	290	454	15	190	197	1	3	-	2
Wis.	175	349	-	34	36	-	-	-	20
W.N. CENTRAL	720	607	8	194	208	9	2	6	162
Minn.	14	40	2	26	47	-	-	-	21
Iowa	32	15	4	16	20	-	-	-	27
Mo.	593	453	-	106	87	2	2	4	5
N. Dak.	-	1	-	2	3	-	-	-	36
S. Dak.	-	-	-	9	14	5	-	2	19
Nebr.	7	17	-	8	12	-	-	-	2
Kans.	74	81	2	27	25	2	-	-	52
S. ATLANTIC	3,161	4,252	12	1,555	1,693	1	18	16	916
Del.	61	107	1	17	23	-	1	1	73
Md.	163	319	-	169	120	-	3	-	272
D.C.	179	196	-	80	54	-	-	-	6
Va.	291	359	2	176	125	-	1	1	180
W. Va.	3	9	-	39	25	-	-	-	38
N.C.	860	1,033	3	189	228	-	-	8	37
S.C.	491	564	-	177	179	-	-	1	78
Ga.	560	885	-	360	385	-	1	1	212
Fla.	553	780	6	348	554	1	12	4	20
E.S. CENTRAL	1,617	1,992	4	591	653	3	2	5	41
Ky.	136	65	2	157	174	-	-	3	5
Tenn.	465	539	1	139	164	2	-	-	-
Ala.	363	809	1	196	179	1	2	-	36
Miss.	653	579	-	99	136	-	-	2	-
W.S. CENTRAL	2,509	2,579	1	792	848	14	2	17	255
Ark.	446	403	-	82	64	8	-	-	15
La.	1,072	1,120	-	-	55	-	1	-	-
Okla.	160	114	1	143	57	4	-	17	55
Tex.	831	942	-	567	672	2	1	-	185
MOUNTAIN	102	187	6	192	240	1	4	2	43
Mont.	1	2	-	5	-	-	-	-	9
Idaho	-	1	1	6	12	-	-	-	-
Wyo.	3	1	-	1	-	1	-	2	6
Colo.	31	27	1	8	17	-	3	-	1
N. Mex.	17	19	-	18	39	-	-	-	3
Ariz.	43	91	-	100	110	-	1	-	23
Utah	2	5	3	11	33	-	-	-	-
Nev.	5	41	1	43	29	-	-	-	1
PACIFIC	462	989	15	2,345	2,185	4	53	-	157
Wash.	25	49	2	115	130	1	4	-	-
Oreg.	46	23	-	41	42	1	-	-	-
Calif.	387	910	13	2,051	1,870	2	47	-	141
Alaska	2	3	-	19	35	-	-	-	16
Hawaii	2	4	-	119	108	-	2	-	-
Guam	-	2	-	28	34	-	-	-	-
P.R.	244	125	-	64	83	-	-	-	22
V.I.	24	24	-	2	3	-	-	-	-
Amer. Samoa	-	-	-	1	-	-	-	-	-
C.N.M.I.	2	4	-	16	12	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending June 12, 1993 (23rd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	630	432	108	70	15	5	64
Boston, Mass.	165	92	39	27	5	2	26
Bridgeport, Conn.	36	31	1	1	2	1	7
Cambridge, Mass.	24	15	7	2	-	-	3
Fall River, Mass.	26	18	5	3	-	-	1
Hartford, Conn.	63	44	12	4	3	-	-
Lowell, Mass.	33	26	6	-	-	1	3
Lynn, Mass.	12	8	1	3	-	-	-
New Bedford, Mass.	25	20	4	1	-	-	1
New Haven, Conn.	44	29	7	8	-	-	2
Providence, R.I.	49	37	5	7	-	-	5
Somerville, Mass.	8	8	-	-	-	-	-
Springfield, Mass.	48	34	10	2	1	1	8
Waterbury, Conn.	33	20	5	5	3	-	2
Worcester, Mass.	64	50	6	7	1	-	6
MID. ATLANTIC	2,657	1,731	483	324	67	46	122
Albany, N.Y.	46	32	11	2	-	1	3
Allentown, Pa.	15	12	1	1	1	-	-
Buffalo, N.Y.	100	71	20	5	3	1	2
Camden, N.J.	34	19	8	2	2	3	-
Elizabeth, N.J.	12	9	2	1	-	-	-
Erie, Pa.§	43	30	10	2	1	-	-
Jersey City, N.J.	46	34	9	3	-	-	-
New York City, N.Y.	1,330	816	246	203	41	24	48
Newark, N.J.	57	18	17	11	1	4	5
Paterson, N.J.	35	20	10	3	1	1	2
Philadelphia, Pa.	497	329	91	60	10	7	35
Pittsburgh, Pa.§	76	52	12	10	1	1	7
Reading, Pa.	15	11	-	2	1	1	-
Rochester, N.Y.	116	94	15	6	-	1	13
Schenectady, N.Y.	33	22	9	1	-	1	-
Scranton, Pa.§	29	27	2	-	-	-	2
Syracuse, N.Y.	93	70	11	10	1	1	2
Trenton, N.J.	28	23	5	-	-	-	-
Utica, N.Y.	21	16	3	-	2	-	1
Yonkers, N.Y.	31	26	1	2	2	-	2
E.N. CENTRAL	2,378	1,503	478	222	108	67	123
Akron, Ohio	96	70	13	7	2	4	1
Canton, Ohio	34	25	9	-	-	-	3
Chicago, Ill.	431	169	94	94	64	10	14
Cincinnati, Ohio	170	134	24	6	2	4	16
Cleveland, Ohio	179	110	49	11	4	5	3
Columbus, Ohio	186	130	36	10	4	6	13
Dayton, Ohio	113	80	26	3	4	-	11
Detroit, Mich.	275	150	65	36	12	12	4
Evansville, Ind.	65	48	11	4	2	-	2
Fort Wayne, Ind.	66	52	10	1	1	2	7
Gary, Ind.	19	12	4	2	1	-	2
Grand Rapids, Mich.	53	30	10	8	2	3	6
Indianapolis, Ind.	169	120	36	6	1	6	11
Madison, Wis.	62	38	15	5	-	4	7
Milwaukee, Wis.	141	108	19	8	1	5	7
Peoria, Ill.	46	34	7	4	1	-	6
Rockford, Ill.	65	45	10	5	3	2	2
South Bend, Ind.	34	23	6	3	2	-	-
Toledo, Ohio	107	76	23	5	1	2	5
Youngstown, Ohio	67	49	11	4	1	2	3
W.N. CENTRAL	739	536	113	56	17	16	28
Des Moines, Iowa	73	52	16	4	1	-	3
Duluth, Minn.	32	25	3	2	1	1	-
Kansas City, Kans.	33	22	7	4	-	-	2
Kansas City, Mo.	119	85	19	12	2	1	3
Lincoln, Nebr.	35	25	9	1	-	-	3
Minneapolis, Minn.	113	86	11	9	2	5	5
Omaha, Nebr.	78	62	11	3	1	1	1
St. Louis, Mo.	138	91	21	14	7	5	-
St. Paul, Minn.	69	53	11	2	2	1	7
Wichita, Kans.	49	35	5	5	1	2	4
S. ATLANTIC	1,304	778	286	158	54	28	64
Atlanta, Ga.	149	100	23	22	3	1	2
Baltimore, Md.	240	138	55	28	14	5	23
Charlotte, N.C.	84	46	20	15	2	1	4
Jacksonville, Fla.	103	56	26	12	4	5	9
Miami, Fla.	116	64	29	19	4	-	-
Norfolk, Va.	56	31	11	5	5	4	5
Richmond, Va.	85	48	22	10	3	2	2
Savannah, Ga.	48	30	10	4	1	3	4
St. Petersburg, Fla.	67	50	13	2	-	2	8
Tampa, Fla.	166	109	34	13	7	3	7
Washington, D.C.	155	81	38	26	9	1	-
Wilmington, Del.	35	25	5	2	2	1	-
E.S. CENTRAL	722	472	146	62	23	19	41
Birmingham, Ala.	113	67	24	11	2	9	2
Chattanooga, Tenn.	62	48	11	2	-	1	4
Knoxville, Tenn.	69	42	11	12	2	2	3
Lexington, Ky.	70	50	9	5	4	2	10
Memphis, Tenn.	143	99	26	12	6	-	9
Mobile, Ala.	73	45	19	4	4	1	2
Montgomery, Ala.	57	37	13	3	2	2	-
Nashville, Tenn.	135	84	33	13	3	2	11
W.S. CENTRAL	1,437	848	297	184	63	42	99
Austin, Tex.	66	44	8	11	2	1	6
Baton Rouge, La.	28	18	5	5	-	-	1
Corpus Christi, Tex.	U	U	U	U	U	U	U
Dallas, Tex.	202	104	52	26	12	8	3
El Paso, Tex.	89	52	16	11	7	3	5
Ft. Worth, Tex.	104	56	26	14	2	6	2
Houston, Tex.	414	254	75	60	18	7	45
Little Rock, Ark.	78	52	14	6	3	2	8
New Orleans, La.	109	49	33	13	7	5	-
San Antonio, Tex.	191	118	37	27	5	4	18
Shreveport, La.	39	26	7	2	2	2	4
Tulsa, Okla.	117	75	24	9	5	4	7
MOUNTAIN	895	610	163	60	39	23	63
Albuquerque, N.M.	114	76	25	10	1	2	4
Colo. Springs, Colo.	60	46	10	3	1	-	4
Denver, Colo.	120	77	22	12	7	2	8
Las Vegas, Nev.	154	99	33	17	4	1	9
Ogden, Utah	23	20	2	1	-	-	4
Phoenix, Ariz.	207	138	40	1	18	10	14
Pueblo, Colo.	17	11	4	1	1	-	-
Salt Lake City, Utah	90	64	11	5	4	6	13
Tucson, Ariz.	110	79	16	10	3	2	7
PACIFIC	1,751	1,240	256	162	58	30	111
Berkeley, Calif.	24	15	5	3	-	-	1
Fresno, Calif.	75	37	10	18	6	4	4
Glendale, Calif.	17	14	2	1	-	-	1
Honolulu, Hawaii	70	55	11	3	-	1	7
Long Beach, Calif.	113	74	20	13	3	3	20
Los Angeles, Calif.	388	323	19	17	21	4	15
Pasadena, Calif.	28	15	9	1	2	1	3
Portland, Oreg.	140	98	20	17	3	2	2
Sacramento, Calif.	159	107	21	23	5	3	12
San Diego, Calif.	137	86	31	15	5	-	18
San Francisco, Calif.	145	88	28	25	2	2	2
San Jose, Calif.	177	124	31	11	7	4	9
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	133	90	28	9	2	4	3
Spokane, Wash.	59	46	10	1	-	2	9
Tacoma, Wash.	86	68	11	5	2	-	5
TOTAL	12,513¶	8,150	2,330	1,298	444	276	715

*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.

U: Unavailable.

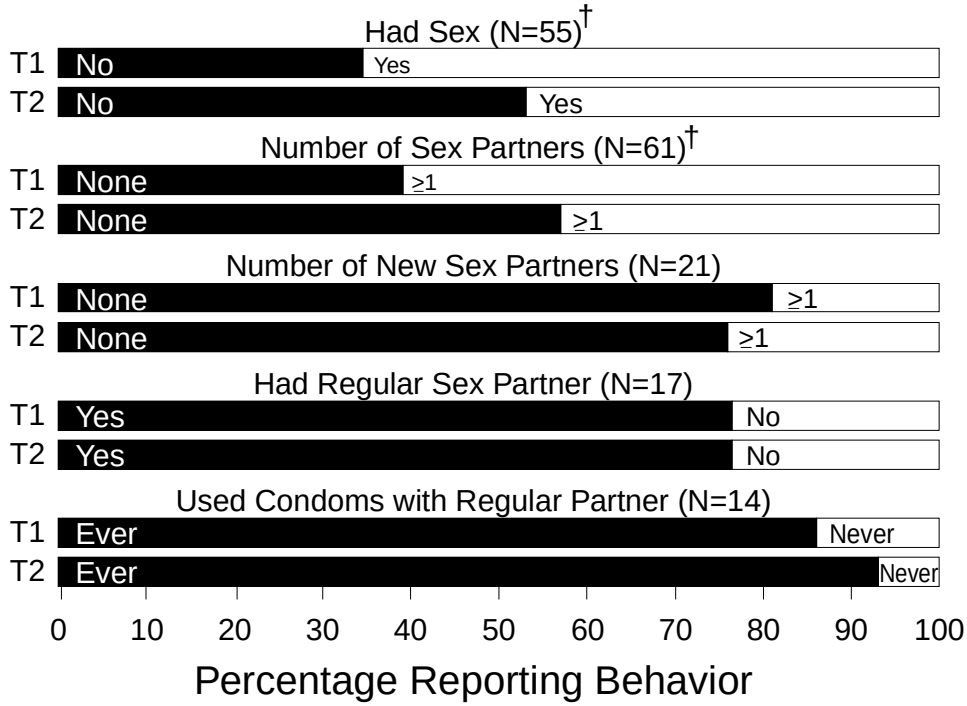
Case Management — Continued

Reported by: Economic Opportunity Health Center, Miami. Morris Heights Health Center, Bronx, New York. Newark Community Health Center, New Jersey. Div of Special Populations, Bur of Primary Health Care, Health Resources and Svcs Administration. Office of the Deputy Director (HIV), National Center for Prevention Svcs, CDC.

Editorial Note: The findings in this report indicate that a sample of HIV-infected persons who received ongoing HIV-prevention case management adopted and sustained selected safer sexual practices during the 6-month follow-up period. Even though this study did not employ a comparison group of HIV-infected persons who had not received HIV-prevention case management, changes to safer sexual behaviors have been observed in previous studies, including those of cohorts of HIV-seropositive men who have sex with men (*4*), injecting-drug users (*5*), and persons with hemophilia (*6*), suggesting that ongoing receipt of client services may be associated with reductions in sexual risk behaviors.

The findings in this report are subject to at least three limitations. First, because the sample size in this study was small, the power to detect statistically significant changes in behavior was limited. Second, because degree of illness (e.g., symptoms or CD4+ T-cell levels) was not controlled for in the study, reports of decreased sexual activity may have been related to the progression of HIV disease or associated illnesses, or to psychosocial effects. Third, no behavioral data were collected during the interval from receipt of HIV test results with posttest counseling until time 1, when changes in risky behaviors may have occurred; because most studies of persons be-

FIGURE 1. Self-reported sexual behaviors during the previous 30 days, at Time 1 (T1) and Time 2 (T2) for 61 HIV-seropositive clients — selected sites,* United States, 1989–1992



*Sixty-one clients of community health centers were interviewed in Miami; New York City; and Newark, New Jersey.

† $p<0.05$ (McNemar test matching client's responses at T1 and T2).

Case Management — Continued

fore and after learning HIV-positive results indicate a decline in high-risk behavior, the findings in this report likely underestimate the behavior changes.

Transmission of HIV can be interrupted by assisting persons with HIV infection in reducing their unsafe sexual and drug-use behaviors. HIV-prevention case management is an early intervention strategy to provide this assistance through counseling, education, psychosocial referrals, and behavioral skills training (*7*). Since 1992, HIV-prevention case management has been identified as a specific program priority for state and local health departments and community-based organizations (CBOs) receiving HIV-prevention funding from CDC (*1*). CDC directly funds 19 CBOs to provide HIV-prevention case management, and many health departments have implemented this HIV-prevention service.

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Epidemiologic Notes and Reports

Pseudomonas cepacia at Summer Camps for Persons with Cystic Fibrosis

Pseudomonas cepacia (PC) is a multidrug-resistant, gram-negative bacillus that causes chronic colonization and infection of the respiratory tract of persons with cystic fibrosis (CF). PC colonization is usually difficult to eradicate with antimicrobial therapy and, in some patients, infection is associated with rapid decline in pulmonary function, increased hospitalization, and earlier death (*1–4*). Previous studies have suggested person-to-person transmission of PC both within and outside of hospitals (*2,3,5–7*). However, possible transmission of PC at CF summer camps—sites for physical and psychosocial therapy for many patients—has not been well characterized. To assess the risk for PC transmission in this setting, in 1987 and 1990, the CF Foundation and CDC conducted epidemiologic investigations in four CF summer camps in Michigan, Ohio, Utah, and Ontario, Canada. This report summarizes the results of these studies.

Pseudomonas cepacia — *Continued*

Michigan

In June 1987, 55 previously known PC-negative patients who were PC-culture negative immediately before attending camp attended a week-long CF camp with 36 other campers known to be colonized or infected with PC. The camp was staffed by 79 volunteer medical, paramedical, and laypersons who served as counselors and administered respiratory therapy and chest physiotherapy to campers. To determine the incidence of sputum conversion from PC-negative to PC-positive among campers, sputum or throat cultures were performed on all participants on arrival at, daily during, and within 3 months after camp.

To determine exposures of PC-negative campers to PC-positive patients or to particular camp staff and potential environmental sources of PC at camp, two investigators visually monitored campers' activities and administered a daily written questionnaire to each camper and/or the camper's counselor. None of the 55 CF campers with initially PC-negative sputum had PC-positive sputum cultures on departure from camp. However, five (9%) were PC-positive on their first follow-up culture within 2–13 weeks after camp. None were exposed to PC outside of the camp setting during this period. All five had reported close contact with PC-positive patients at camp, including participating in the same activities together for most of the day (four patients), hugging (three), lip-to-cheek kissing (one), and sharing toothpaste or finger food with (two) a PC-positive camper.

PC isolates from all five converters had the same ribotype (i.e., the restriction fragment-length polymorphism banding patterns were identical or had one- or two-band differences) as isolates from one or more PC-colonized campers and different from those of control isolates from other CF campers from other summer camps or CF centers. Of the five converters, three had PC with the same ribotype as that of isolates from PC-colonized campers with whom they had reported close contact.

Of 22 environmental cultures, three lake water samples grew PC. All three had an identical ribotype distinct from any of the PC isolates from campers.

Ohio, Utah, and Ontario

From June through August 1990, a study was conducted at three CF summer camps attended by PC-negative and PC-positive patients in Ohio, Utah, and Ontario. Sputum or throat cultures were performed on campers on their arrival at camp, every 7 days until the end of camp, and 14–30 days after camp. To compare the incidence of sputum conversion from PC-negative to PC-positive of CF patients at camp with that outside of camp, sputum cultures were also performed on consenting noncamper CF patients who were known to be PC-negative and who, during the 2 weeks before camp, visited outpatient clinics or were hospitalized at the CF centers that the campers attended. The noncampers' sputum cultures were repeated 14–30 days after their corresponding CF-center summer camp ended.

Overall, of 191 CF patients who were PC-negative on arrival at camp, 181 completed their after-camp follow-up. Their cumulative incidence of PC sputum conversion was 11 (6%) of 181. The CF campers' risk for acquiring PC was approximately 12 times (Woolf's estimate of relative risk [RR]=11.7, lower 95% confidence limit=1.7) that of 92 noncamper controls, none of whom acquired PC during the study period. The increased risk for acquiring PC was not associated with older age or more severe underlying CF—host factors that predispose CF patients to develop PC coloni-

Pseudomonas cepacia — *Continued*

zation. Compared with noncampers, PC-negative campers were younger and had milder CF. In addition, PC-negative campers and noncampers had similar sex distributions.

The risk for conversion to PC-positive was directly proportionate to the prevalence of PC-positive persons at camp: zero of 84 PC-negative campers in the Ohio camp (3% of attendees were PC-positive on entry); two (4%) of 47 PC-negative campers in the Utah camp (16% were positive on entry); and nine (18%) of 50 PC-negative campers in the Ontario camp (38% were PC-positive on entry) ($p<0.001$, chi-square test for linear trends). The risk for conversion also was increased in the camp with the longer duration: nine (18%) of 50 in the Ontario camp (duration: 4 weeks), compared with two (2%) of 131 in Ohio and Utah combined (duration for each: 1 week) (RR=11.8; 95% CI=2.7–53.5).

Risk-factor assessment based on daily (in Ohio and Utah) or weekly (in Ontario) written questionnaires indicated that the risk for sputum conversion was higher in those who reported sharing an eating utensil (RR=8.9; 95% CI=2.7–30.1), dancing (RR=4.2; 95% CI=1.2–15.4), or sleeping in the same cabin with a PC-positive camper (RR=3.7; 95% CI=1.1–12.3).

Of 11 campers whose sputum converted from PC-negative to PC-positive, nine had PC isolates with the same ribotype as that of PC isolates of other campers at their respective camps, and two had a common ribotype distinct from those of PC isolates of 33 known PC-positive persons in the same camp. Of the nine campers whose PC ribotypes matched those of other campers, four reported any contact with the campers whose isolates were of the same ribotype as theirs, including sleeping in the same cabin with and/or spending more than 4 hours per day in the company of a PC-positive camper.

Of 36 environmental cultures, one (ice water obtained from a picnic jug at the Utah camp) grew PC; this PC isolate had a distinct ribotype that differed from any of the PC isolates from Utah campers.

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Editorial Note: Studies to determine the risk for and mechanisms of PC acquisition by CF patients have been limited by the unknown sensitivity of sputum or throat cultures in detecting PC in the CF patient's respiratory tract and, consequently, by the difficulty in determining when PC is acquired by the patient. Despite these limitations, the epidemiologic and laboratory findings in this report suggest that PC can be acquired at CF summer camps, and person-to-person transmission is a likely mode of spread. Factors that may have contributed to an increased risk for PC acquisition at the camps include a high prevalence of PC-positive CF campers (>5%) or prolonged (>1 week)

Pseudomonas cepacia — *Continued*

duration of camp, probably reflecting increased opportunity for frequent, close, and prolonged contact between campers.

The degree to which contact-isolation precautions (i.e., handwashing, gloving, gowning, cohorting of CF patients by their PC-colonization status, and discarding contaminated articles) (*8*) were followed at each camp in this report was not assessed; therefore, the impact of recommended precautions for preventing nosocomially acquired PC at camp is unknown. In CF camps where transmission of PC has been suspected or where the prevalence of PC-positive campers exceeds 5%, and/or camp duration is longer than 1 week, camp personnel should either fully implement contact-isolation precautions at the camp or prohibit PC-positive and PC-negative CF patients from attending camp together (*8*). In areas with a high prevalence of PC-positive patients, separate CF summer camps for PC-positive and PC-negative patients may be feasible.

These recommendations are dependent on adequate procedures for screening patients before camp. Therefore, sputum or throat cultures should be appropriately collected from patients with CF and transported to and processed in a laboratory that routinely uses PC-selective media and by personnel who are proficient in isolating and identifying PC from sputum of patients with CF (*9*).

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Current Trends

Mortality Trends and Leading Causes of Death Among Adolescents and Young Adults — United States, 1979–1988

Approximately three fourths of the more than 40,000 deaths each year among persons aged 10–24 years in the United States are related to preventable causes such as motor-vehicle crashes (37%), homicide (14%), suicide (12%), and other injuries (e.g., drowning, poisoning, and burns) (12%). To characterize changes in leading causes of

Mortality Trends — Continued

death among adolescents and young adults during 1979–1988, data were analyzed from the vital statistics mortality reporting system maintained by CDC's National Center for Health Statistics. This report summarizes the results of the analysis.

Data were obtained from the Compressed Mortality File (CMF), which contains information from death certificates filed in the 50 states and the District of Columbia that have been prepared in accordance with external cause codes from the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM). CDC's Wide-Ranging ONline Data for Epidemiologic Research (WONDER) computerized information system was used to access CMF data (*1,2*). Death rates are presented as crude rates* based on a decedent's state of residence and exclude deaths of nonresidents of the United States. Death rates are analyzed by various demographic characteristics, including age group (10–14, 15–19, 20–24, and 10–24 years), for overall mortality and for the four leading causes of death.

From 1979 through 1988, overall death rates for all persons aged 10–24 years decreased 11.7% (Table 1). The greatest decline in death rates for all persons was associated with the "other injury" category (35.7%). Death rates also declined for motor-vehicle crashes (15.5%), but increased for suicide and homicide (7.9% and 6.7%, respectively).

Overall death rates and death rates from motor-vehicle crashes and from other injuries decreased for all three age groups (Table 1). Suicide rates increased for persons aged 10–14 years (75.0%) and 15–19 years (34.5%) but decreased for those aged 20–24

* Age group distributions (10–14, 15–19, and 20–24 years) were not significantly different across states or across years; therefore, no age adjustments were used.

TABLE 1. Death rates* for adolescents and young adults aged 10–24 years, by cause of death and age group — United States, 1979–1988

	Age group (yrs)			
Cause of death	**10–14**	**15–19**	**20–24**	**Total**
Motor-vehicle crash				
1979	8.2	44.6	46.7	**34.3**
1988	7.5	37.2	39.7	**29.0**
% Change	– 8.5	–16.6	–15.0	**–15.5**
Other injury				
1979	8.0	14.8	19.1	**14.3**
1988	5.2	9.4	12.4	**9.2**
% Change	–35.0	–16.6	–15.0	**–35.7**
Suicide				
1979	0.8	8.4	16.4	**8.9**
1988	1.4	11.3	15.0	**9.6**
% Change	+75.0	+34.5	– 8.5	**+ 7.9**
Homicide				
1979	1.2	10.3	18.8	**10.5**
1988	1.7	11.7	19.0	**11.2**
% Change	+41.7	+13.6	+ 1.1	**+ 6.7**
Overall				
1979	**31.8**	**98.8**	**131.0**	**89.6**
1988	**27.5**	**88.0**	**115.4**	**79.1**
% Change	**–13.5**	**–10.9**	**–11.9**	**–11.7**

* Per 100,000 population.

Mortality Trends — Continued

years (8.5%). Homicide rates increased for all three age groups, with the sharpest increase among persons aged 10–14 years (41.7%).

In 1987 and 1988, overall death rates for persons aged 10–24 years were highest in the District of Columbia (135.2 per 100,000 population), Alaska (106.7), New Mexico (105.3), Idaho (95.2), Florida (94.3), Arkansas (93.7), Arizona (92.5), Georgia (91.8), Mississippi (91.7), and South Carolina (91.7). Overall death rates were lowest in Rhode Island (56.4), Hawaii (57.0), Massachusetts (58.5), Minnesota (60.0), Utah (64.6), Iowa (64.9), New Hampshire (66.0), Wisconsin (66.0), Colorado (66.3), and Connecticut (66.3).

Reported by: Div of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion; National Center for Injury Prevention and Control, CDC.

Editorial Note: The findings in this report indicate that, during 1979–1988, death rates among adolescents and young adults varied among states. These variations may reflect state-specific differences in several factors, including personal risk behaviors (e.g., drinking and driving and carrying a weapon); legislation and enforcement practices (e.g., mandatory safety-belt laws and speed limits); safety standards (e.g., passive restraint systems in automobiles and improved building codes); and environmental factors (e.g., terrain).

Cause-specific death rates for adolescents and young adults can be used by policy planners, decision makers, and education and health officials to initiate or improve public health policies, comprehensive school health programs, and other interventions designed to reduce death rates and related risk behaviors. For example, in Colorado, the Advisory Council on Adolescent Health has proposed model programs to address the leading causes of death among adolescents and has established health objectives for the year 2000 that target specific reductions in motor-vehicle crash deaths, homicides, suicides, and deaths from other injuries among adolescents (*3*).

CDC has established a monograph series (*4*) to help monitor adolescent morbidity and mortality and to provide national, state, and local education and health agencies with information about a broad range of priority health outcomes. States and communities can use information in the first monograph to monitor progress in attaining numerous national health objectives for the year 2000 (*5*).† Single copies of the first monograph, *Adolescent Health: State of the Nation—Mortality Trends, Causes of Death, and Related Risk Behaviors Among U.S. Adolescents* (*4*), are available from CDC's Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Mailstop K-33, 4770 Buford Highway, NE, Atlanta, GA 30341-3724.

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†Objectives 4.1b, 6.1a, 6.1b, 7.1c, 7.1e, 7.2a, 7.2b, 7.3, 9.1, 9.3a, 9.3b, and two age-related objectives that aim to reduce the death rate by 15% to no more than 28 per 100,000 children aged 1–14 years and to no more than 85 per 100,000 population aged 15–24 years.

Mortality Trends — Continued

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Notice to Readers

Public Health Leadership Institute

The CDC/University of California Public Health Leadership Institute (PHLI) is a 1-year scholars' program designed to strengthen the U.S. public health system by enhancing the leadership capacities of senior city, county, and state public health officials. The major themes of the curriculum are challenges—current and future issues confronting public health, leadership and vision, communication and information, and political and social change. The PHLI year will begin October 24 and will include an intensive on-site session March 7–11, 1994; applications are being accepted from senior health officials of state and local health agencies. At least 50 officials will be selected to participate in the PHLI.

Beginning with the 1993–94 PHLI, state deputy directors nominated by state health directors will be accepted. Applications are now available and are due August 6, 1993. Scholars selected will be notified by September 15. Additional information and applications are available from the Director, PHLI, telephone (916) 448-7891, or from CDC's Division of Public Health Systems, Public Health Practice Program Office, telephone (404) 639-1967.

Quarterly Table Reporting Alcohol Involvement in Fatal Motor-Vehicle Crashes

The following table reports alcohol involvement in fatal motor-vehicle crashes in the United States for April–June 1992. This table, published quarterly in *MMWR*, focuses attention on the impact of alcohol use on highway safety.

A fatal crash is considered alcohol-related by the National Highway Traffic Safety Administration (NHTSA) if either a driver or nonoccupant (e.g., pedestrian) had a blood alcohol concentration (BAC) of ≥0.01 g/dL in a police-reported traffic crash. Those with a BAC ≥0.10 g/dL (the legal level of intoxication in most states) are considered intoxicated. Because BACs are not available for all persons in fatal crashes, NHTSA estimates the number of alcohol-related traffic fatalities based on a discriminant analysis of information from all cases for which driver or nonoccupant BAC data are available. There may be seasonal trends associated with these data.

Estimated number and percentage of total traffic fatalities* and drivers involved in fatal crashes, by age and blood alcohol concentration (BAC) level — United States, April–June 1992

Age group (yrs)	No. fatalities§	Fatalities, by BAC†					
		BAC=0.00		0.01%≤BAC≤0.09%		BAC≥0.10%	
		No.	(%)	No.	(%)	No.	(%)
0–14	716	545	(76.2)	59	(8.2)	112	(15.6)
15–20	1,444	818	(56.7)	184	(12.8)	441	(30.6)
21–24	1,066	407	(38.2)	121	(11.4)	538	(50.5)
25–34	2,085	748	(35.9)	221	(10.6)	1,116	(53.5)
35–64	2,898	1,474	(50.9)	264	(9.1)	1,160	(40.0)
≥65	1,461	1,174	(80.3)	92	(6.3)	196	(13.4)
Total	**9,670**	**5,166**	**(53.4)**	**941**	**(9.7)**	**3,563**	**(36.8)**

Age group (yrs)	No. drivers§	Drivers,¶ by BAC**					
		BAC=0.00		0.01%≤BAC≤0.09%		BAC≥0.10%	
		No.	(%)	No.	(%)	No.	(%)
0–14††	36	34	(93.9)	1	(3.1)	1	(3.0)
15–20	1,905	1,376	(72.2)	194	(10.2)	336	(17.6)
21–24	1,536	890	(57.9)	164	(10.7)	482	(31.4)
25–34	3,254	1,927	(59.2)	276	(8.5)	1,051	(32.3)
35–64	4,562	3,420	(75.0)	236	(5.2)	907	(19.9)
≥65	1,348	1,208	(89.6)	43	(3.2)	97	(7.2)
Total	**12,641**	**8,854**	**(70.0)**	**913**	**(7.2)**	**2,874**	**(22.7)**

*Fatalities include all occupants and nonoccupants who died within 30 days of a motor-vehicle crash on a public roadway.
†BAC distributions are estimates for drivers and nonoccupants involved in fatal crashes. Numbers of fatalities are rounded to the nearest whole number.
§Includes only those for whom age is known.
¶Driver may or may not have been killed.
**BAC distributions are estimates for drivers involved in fatal crashes. Numbers of drivers are rounded to the nearest whole number.
††Although usually too young to drive legally, persons in this age group are included for completeness of the data set.

Source: Fatal Accident Reporting System, National Highway Traffic Safety Administration.

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