CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

February 21, 1997 / Vol. 46 / No. 7

MMWR™

MORBIDITY AND MORTALITY WEEKLY REPORT

Update: Blood Lead Levels — United States, 1991–1994

Lead is an environmental toxicant that may deleteriously affect the nervous, hematopoietic, endocrine, renal, and reproductive systems (*1*). Lead exposure in young children is a particular hazard because children absorb lead more readily than do adults and because the developing nervous systems of children are more susceptible to the effects of lead (*2*). Blood lead levels (BLLs) at least as low as 10 µg/dL can adversely affect the behavior and development of children (*2*). CDC's National Health and Nutrition Examination surveys (NHANES), an ongoing series of national examinations of the health and nutritional status of the civilian noninstitutionalized population, have been the primary source for monitoring BLLs in the U.S. population. From NHANES II (conducted during 1976–1980) to Phase 1 of NHANES III (conducted during October 1988–September 1991), the geometric mean (GM) BLL for persons aged 1–74 years declined from 12.8 µg/dL to 2.9 µg/dL, and the prevalence of elevated BLLs (BLLs ≥10 µg/dL) decreased from 77.8% to 4.4% (*3*).* This report updates national BLL estimates with data from Phase 2 of NHANES III (conducted during October 1991–September 1994), which indicate that BLLs in the U.S. population aged ≥1 year continued to decrease and that BLLs among children aged 1–5 years were more likely to be elevated among those who were poor, non-Hispanic black, living in large metropolitan areas, or living in older housing.

In NHANES III, blacks, Mexican Americans, children aged 2 months–5 years, and persons aged ≥60 years were oversampled to increase the reliability of estimates for these groups (*4*). A household interview and a physical examination were conducted for each survey participant. During the physical examination, 1 mL of whole blood was collected by venipuncture from examinees aged ≥1 year. Graphite furnace atomic absorption spectrophotometry was used to measure BLLs at a detection limit of 1 µg/dL (*5*); BLLs below the level of detection were assigned a value of 0.7 µg/dL.

In this analysis, income categories were defined using the poverty-income ratio (PIR; the ratio of total family income to the poverty threshold for the year of the interview); low income was defined as PIR ≤1.300; middle, as PIR 1.301–3.500; and high, as PIR ≥3.501. Urban status was based on U.S. Department of Agriculture codes

*The BLL value assigned to persons with BLLs below the level of detection and the sample examination weights were revised slightly in the NHANES III data set after publication of BLLs from Phase 1. Therefore, some values for Phase 1 data reported here do not match previously published values.

Blood Lead Levels — Continued

that classify counties by total population and proximity to major metropolitan areas (*6*); the two categories used were metropolitan areas with a population ≥1 million and metropolitan and nonmetropolitan areas with a population <1 million. Data on the age-of-housing variable were collected by self-report using three categories (built before 1946, during 1946–1973, and after 1973); these cutpoints closely correspond to years in which the amount of lead contained in residential paint was altered (*2*)[†]. The sample included 13,642 persons; 2392 were children aged 1–5 years. Data for racial/ethnic groups other than non-Hispanic black, non-Hispanic white, and Mexican American were too small for reliable estimates. Statistical analyses were performed using Software for Survey Data Analysis, which accounted for the complex sample design. Asymmetric 95% confidence intervals were calculated using the natural logarithmic transformation (*7*).

During 1991–1994, the overall GM BLL of the U.S. population aged ≥1 year was 2.3 µg/dL (Table 1). GM BLLs varied by age and were highest among children aged 1–2 years and persons aged ≥50 years. Among those aged ≥1 year, approximately 2.2% had BLLs ≥10 µg/dL (Table 1). Among those aged 1–5 years, approximately 4.4% had BLLs ≥10 µg/dL (Table 1), representing an estimated 930,000 children aged 1–5 years in the United States with BLLs ≥10 µg/dL. In addition, among children aged 1–5 years, approximately 1.3% had BLLs ≥15 µg/dL, and 0.4% had BLLs ≥20 µg/dL.

For children aged 1–5 years, the prevalence of BLLs ≥10 µg/dL was higher among those who were non-Hispanic blacks or Mexican Americans, from lower-income families, living in metropolitan areas with a population ≥1 million, or living in older housing (Table 2). The differences in risk for an elevated BLL by race/ethnicity, income, and urban status generally persisted across age-of-housing categories. Similarly, the higher risk for an elevated BLL associated with older age of housing generally persisted across race/ethnicity, income, and urban status categories. Therefore, the risk for an elevated BLL was higher among non-Hispanic black children living in housing built before 1946 (21.9%) or built during 1946–1973 (13.7%), among children in low-income households who lived in housing built before 1946 (16.4%), and among children in areas with populations ≥1 million who live in housing built before 1946 (11.5%) when

[†]Residential paint containing up to 50% lead was in widespread use through the 1940s; lead usage in residential paint declined thereafter and was banned in 1978.

TABLE 1. Weighted geometric mean (GM) blood lead levels (BLLs) and percentage of population aged ≥1 year with BLLs ≥10 µg/dL, by age group — United States, Third National Health and Nutrition Examination Survey–Phase 2, 1991–1994

Age group (yrs)	Sample size	GM BLL (µg/dL) BLL	(95% CI*)	% with BLLs ≥10 µg/dL %	(95% CI)
1– 5	2,392	2.7	(2.5–3.0)	4.4%	(2.9%–6.6%)
1–2	*987*	*3.1*	*(2.8–3.5)*	*5.9%*	*(3.7%–9.2%)*
3–5	*1,405*	*2.5*	*(2.3–2.7)*	*3.5%*	*(2.2%–5.4%)*
6–11	1,345	1.9	(1.8–2.1)	2.0%	(1.2%–3.3%)
12–19	1,615	1.5	(1.4–1.7)	0.8%	(0.3%–1.9%)
20–49	4,716	2.1	(2.0–2.2)	1.5%	(1.0%–2.2%)
50–69	2,026	3.1	(2.9–3.2)	2.9%	(2.1%–3.8%)
≥70	1,548	3.4	(3.3–3.6)	4.6%	(3.4%–6.0%)
Total	**13,642**	**2.3**	**(2.1–2.4)**	**2.2%**	**(1.6%–2.8%)**

*Confidence interval.

TABLE 2. Percentage of children aged 1–5 years with blood lead levels (BLLs) ≥10 µg/dL, by year housing built and selected characteristics, and weighted geometric mean (GM) BLLs, by selected characteristics — United States, Third National Health and Nutrition Examination Survey–Phase 2, 1991–1994*

	Year housing built†						Total			
	Before 1946		During 1946–1973		After 1973				GM BLL (µg/dL)	
Characteristic	**%**	**(95%CI§)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**BLL**	**(95% CI)**
Race/Ethnicity¶										
Black, non-Hispanic	21.9%	(9.4%–51.1%)	13.7%	(9.1%–20.6%)	3.4%	(1.4%–7.9%)	**11.2%**	**(6.7%–18.7%)**	**4.3**	**(3.7–5.0)**
Mexican American	13.0%	(5.7%–29.8%)	2.3%	(1.1%– 5.1%)	1.6%	(0.5%–5.2%)	**4.0%**	**(2.2%– 7.2%)**	**3.1**	**(2.7–3.5)**
White, non-Hispanic	5.6%	(2.2%–14.4%)	1.4%	(0.3%– 6.0%)	1.5%	(0.3%–7.0%)	**2.3%**	**(1.0%– 5.0%)**	**2.3**	**(2.1–2.5)**
Income**										
Low	16.4%	(9.9%–27.2%)	7.3%	(4.6%–11.4%)	4.3%	(2.1%–9.1%)	**8.0%**	**(5.4%–11.7%)**	**3.8**	**(3.3–4.2)**
Middle	4.1%	(1.3%–12.8%)	2.0%	(1.0%– 4.1%)	0.4%	(0.1%–1.3%)	**1.9%**	**(1.1%– 3.2%)**	**2.3**	**(2.1–2.5)**
High	0.9%	(0.1%– 6.5%)	2.7%	(0.6%–11.3%)	0††		**1.0%**	**(0.3%– 3.4%)**	**1.9**	**(1.7–2.1)**
Urban status§§										
Population ≥1 million	11.5%	(6.5%–20.2%)	5.8%	(3.2%–10.4%)	0.8%	(0.3%–2.1%)	**5.4%**	**(3.0%– 9.8%)**	**2.8**	**(2.4–3.2)**
Population <1 million	5.8%	(2.0%–16.8%)	3.1%	(0.9%–10.1%)	2.5%	(0.7%–9.6%)	**3.3%**	**(1.5%– 7.0%)**	**2.7**	**(2.3–3.0)**
Total	**8.6%**	**(5.2%–14.2%)**	**4.6%**	**(2.9%– 7.5%)**	**1.6%**	**(0.6%–4.4%)**	**4.4%**	**(2.9%– 6.6%)**	**2.7**	**(2.5–3.0)**

* Sample size=2392, and includes racial/ethnic groups in addition to those listed separately.
† Age of housing was unknown by the household respondent for 11.7% of children aged 1–5 years; approximately 5.6% of these children had BLLs ≥10 µg/dL.
§ Confidence interval.
¶ Data for other racial/ethnic groups were too small for reliable estimates.
** Income categories were defined using the poverty-income ratio (PIR; the ratio of total family income to the poverty threshold for the year of the interview): low income was defined as PIR ≤1.300; middle, as PIR 1.301–3.500; and high, as PIR ≥3.501. Persons with data missing for income were not included in the analysis of income.
†† No children in the sample had these characteristics; however, the true estimate for this population group is probably larger than zero.
§§ Urban status was based on U.S. Department of Agriculture codes that classify counties by total population and proximity to major metropolitan areas (*6*) and divided into two categories: metropolitan areas with a population ≥1 million and metropolitan and nonmetropolitan areas with a population <1 million.

compared with children in other categories. Based on a multivariate logistic regression model, non-Hispanic black race/ethnicity, low income, and living in housing built before 1946 were independent predictors of elevated BLLs in children aged 1–5 years. Living in urban areas was not an independent predictor of elevated BLLs when controlling for race/ethnicity, income, and age of housing.

For the total population, GM BLLs decreased by 21.7% from Phase 1 to Phase 2 with minimal variation within age, sex, race/ethnicity, income, age-of-housing, and urban status groups (range: 17.4%–26.4%). Among children aged 1–5 years, the overall absolute decrease in the prevalence of elevated BLLs from Phase 1 to Phase 2 was 4.1 percentage points. The percentage point decrease was generally greater among those groups with higher prevalences of elevated BLLs during Phase 1: children aged 1–2 years (5.2), non-Hispanic black children (7.4), children from low-income families (6.9), children living in areas with a population <1 million (5.3), and children living in housing built before 1946 (9.6). Conversely, the percentage decrease of elevated BLLs from Phase 1 to Phase 2 was 48.4% among all children aged 1–5 years and generally was smaller among those groups at highest risk for elevated BLLs.

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Editorial Note: The findings in this analysis of NHANES III data indicate that the GM BLL for the U.S. population aged ≥1 year decreased by 22% from Phase 1 to Phase 2, and the prevalence of BLLs ≥10 µg/dL decreased by 51% over the same period. However, constraints of the survey design of NHANES III precluded statistical testing for the differences in GM BLLs and the prevalences of elevated BLLs from Phase 1 to Phase 2. The decrease in BLLs observed from Phase 1 to Phase 2 follow even larger decreases from NHANES II (1976–1980) to Phase 1 of NHANES III. Among persons aged 1–74 years, the GM BLL declined 77% from NHANES II to Phase 1 of NHANES III, and the prevalence of BLLs ≥10 µg/dL decreased by 94% (*3*).

The dramatic decline in BLLs in the U.S. population since the late 1970s is probably a direct consequence of the regulatory and voluntary bans enacted during this period on the use of lead in gasoline, household paint, food and drink cans, and plumbing systems (*2*). The effects of these changes benefited all U.S. population groups studied. In addition, BLLs may have been reduced in some groups as the result of childhood lead poisoning-prevention efforts undertaken by public health agencies, lead paint-abatement programs, and the promulgation of a standard for lead exposure in industry.

Despite the recent and large declines in BLLs, the risk for lead exposure remains disproportionately high for some groups, including children who are poor, non-Hispanic black, Mexican American, living in large metropolitan areas, or living in older housing. Although confidence intervals for elevated BLL prevalence estimates overlapped across age-of-housing and urban status categories for all children aged 1–5 years, the overall direction of the risk differentials is consistent with results from previous years (*8*). In addition, with the exception of urban status—which was too broadly defined in this study to reflect gradations of risk associated with residence in a central city versus residence in outlying metropolitan or suburban areas—each of these factors was an independent contributor to the risk for elevated BLLs among children.

Blood Lead Levels — Continued

The risk for lead exposure in children is primarily determined by environmental conditions of the child's residence. The most common source for lead exposure for children is lead-based paint that has deteriorated into paint chips and lead dust (*2*). In the United States, approximately 83% of privately owned housing units and 86% of public housing units built before 1980 contain some lead-based paint (*9*). In addition, soil and dust contaminated with residual lead fallout from vehicle exhaust contribute to exposure; concentrations of lead in soil and dust are highest in central urban areas (*10*). For adults, the most common high-dose exposure sources are occupational (*1*). Other exposure sources for adults and children can include lead dust brought into the home on clothing from workplaces, lead used for some hobbies, lead contained in some "folk" medicines and cosmetics, and lead in plumbing and in crystal and ceramic containers that leaches into water or food (*2*).

Despite the substantial progress in eliminating sources of lead in the United States, the NHANES data indicate that nearly 1 million children aged 1–5 years had elevated BLLs during 1991–1994. In addition to efforts to reduce or eliminate sources of lead and exposure to lead, screening efforts are necessary for early identification of children with elevated BLLs to enable prompt and appropriate environmental, educational, and medical interventions.

Because the distribution of risk for childhood lead exposure varies widely within the United States, prevention activities must be conducted at the local level and must be appropriate to local conditions. In areas where the risk for elevated BLLs is low, screening efforts should be targeted to children who remain at elevated risk for lead exposure. CDC is developing guidelines to assist state and local health departments in designing screening recommendations appropriate to their jurisdictions. A draft of these guidelines is available for public review and comment through April 7, 1997; copies can be obtained by calling (888) 232-6789 or accessing the World Wide Web at http://www.cdc.gov/nceh.

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Blood Lead Levels — Continued

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Trends in Ischemic Heart Disease Deaths — United States, 1990–1994

In 1994, a total of 481,458 persons died as a result of ischemic heart disease (IHD), which comprises two thirds of all heart disease—the leading cause of death in the United States. This report presents trends in IHD mortality in the United States for 1990–1994 (the latest year for which data are available) and compares these trends by race, sex, and state. These findings indicate IHD death rates decreased from 1990 through 1994; however, the rate of decline was slower than rates of previously observed declines.

Age-adjusted IHD death rates for persons aged ≥35 years were calculated using mortality data tapes compiled by CDC and population estimates from the Bureau of the Census. IHD death rates were directly age-adjusted to the 1980 U.S. standard population aged ≥35 years. IHD deaths were defined as those with the underlying cause of death listed on the death certificate as *International Classification of Diseases, Ninth Revision* [ICD-9], codes 410–414.9. The average annual percentage change in IHD mortality from 1990 through 1994 was calculated as the 1994 rate minus the 1990 rate divided by the 1990 rate divided by 4 multiplied by 100. Data are presented only for blacks and whites because numbers for other racial/ethnic groups were too small for meaningful analysis.

From 1990 through 1994, age-adjusted IHD death rates for the U.S. population aged ≥35 years decreased 10.3%, from 416.3 deaths per 100,000 to 373.6 deaths per 100,000. However, the rate of decrease varied by race and sex; rates of decline were faster for whites than for blacks and for men than for women (Figure 1). The largest average annual percentage decrease occurred among white men (2.9% per year), followed by white women (2.5%), black men (2.3%), and black women (1.6%).

IHD death rates varied substantially among the states (Table 1). In 1994, the rates for both women and men residing in the states with the highest IHD death rates were approximately two times higher than for persons residing in the states with the lowest IHD death rates. For women, IHD death rates in 1994 ranged from 156.7 per 100,000 (Montana) to 406.3 per 100,000 (New York) and, for men, ranged from 289.4 per 100,000 (New Mexico) to 638.8 per 100,000 (New York).

From 1990 through 1994, IHD death rates declined in nearly all 50 states and the District of Columbia (Table 1). However, the magnitude of change over time varied widely; some states had small declines (e.g., Nevada, 0.1% per year and Hawaii, 0.9% per year) while other states experienced larger declines (e.g., Alaska, 5.5% per year and Montana, 5.6% per year). Sex-specific IHD death rates for both men and women declined for each state except Idaho and Nevada (small increase for women only) and the District of Columbia (small increase for men only).

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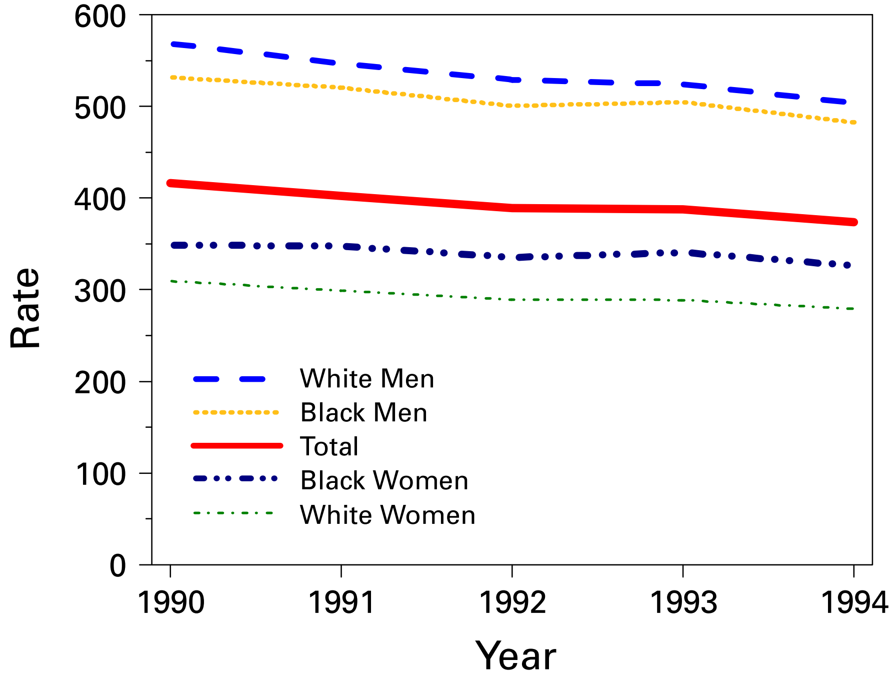
Ischemic Heart Disease — Continued

FIGURE 1. Age-adjusted death rate* of ischemic heart disease† for adults aged ≥35 years, by race§ and sex — United States, 1990–1994



*Per 100,000 population, adjusted to the 1980 U.S. standard population.
†*International Classification of Diseases, Ninth Revision*, codes 410–414.9.
§Data are presented only for blacks and whites because numbers for other racial/ethnic groups were too small for meaningful analysis.

Editorial Note: The findings in this report indicate that, for persons aged ≥35 years, age-adjusted IHD death rates decreased during 1990–1994; however, the magnitude of decline varied by race, sex, and state and was slower than the decline that occurred during the 1980s (*1*). During 1980–1988, IHD death rates declined an average of 3.0% per year, and during 1990–1994, declined an average of 2.6%. The slowing of the decline in IHD death rates was first observed in the mid-1970s for black women, black men, and white women (*2*). The initial declines in IHD death rates occurred during the 1960s, when rates declined steadily for each racial/sex group. The earliest declines in rates occurred in metropolitan areas, especially those located in the Northeast and Pacific West and in communities with higher levels of socioeconomic development (as reflected by occupational, educational, and income profiles of these communities) (*3,4*).

Factors contributing to the differential levels and rates of decline in IHD death rates by race, sex, and state may include differences in 1) trends in socioeconomic and behavioral risk factors for IHD, 2) access to quality health care, and 3) geographic and temporal variation in the medical certification of IHD. Previous reports indicate that IHD death rates vary inversely with social, economic, and medical resources (*5,6*). Higher levels of community resources contribute to declines in IHD death rates by providing or increasing opportunities for community members to have access to low-fat and high-fiber foods; engage in leisure-time physical activity; quit smoking; and

TABLE 1. Age-adjusted death rate* of ischemic heart disease† for adults aged ≥35 years, by year, and average annual percentage change in rate from 1990 to 1994, by sex and state — United States

	Women			Men			Total		
State	1990	1994	% Change from 1990 to 1994	1990	1994	% Change from 1990 to 1994	1990	1994	% Change from 1990 to 1994
Alabama	263.8	231.3	–3.1	510.1	448.3	–3.1	**366.9**	**321.9**	**–3.1**
Alaska	197.6	189.3	–1.1	491.5	345.7	–7.4	**338.3**	**263.9**	**–5.5**
Arizona	273.1	237.6	–3.2	504.1	428.5	–3.7	**375.7**	**324.1**	**–3.4**
Arkansas	321.8	304.5	–1.3	592.5	567.7	–1.0	**437.8**	**420.9**	**–1.0**
California	306.4	280.1	–2.1	505.9	456.7	–2.4	**392.2**	**356.5**	**–2.3**
Colorado	246.3	189.6	–5.8	467.8	368.9	–5.3	**341.6**	**266.2**	**–5.5**
Connecticut	262.0	235.1	–2.6	453.6	405.5	–2.7	**341.9**	**306.9**	**–2.6**
Delaware	292.7	253.9	–3.3	493.5	463.2	–1.5	**378.0**	**343.4**	**–2.3**
District of Columbia	199.2	177.8	–2.7	313.6	348.3	2.8	**245.6**	**243.7**	**–0.2**
Florida	288.5	269.5	–1.6	528.7	477.7	–2.4	**393.2**	**361.0**	**–2.0**
Georgia	289.4	254.0	–3.1	548.2	478.9	–3.2	**395.0**	**346.1**	**–3.1**
Hawaii	189.1	173.9	–2.0	307.8	305.5	–0.2	**244.6**	**235.8**	**–0.9**
Idaho	235.3	239.6	0.5	486.4	418.1	–3.5	**346.3**	**320.4**	**–1.9**
Indiana	342.7	315.4	–2.0	581.0	538.0	–1.9	**440.9**	**408.7**	**–1.8**
Illinois	338.4	305.9	–2.4	630.8	555.5	–3.0	**459.1**	**410.2**	**–2.7**
Iowa	271.3	252.2	–1.8	535.9	491.4	–2.1	**380.8**	**353.3**	**–1.8**
Kansas	270.2	234.0	–3.3	529.9	452.5	–3.7	**378.6**	**326.6**	**–3.4**
Kentucky	326.4	300.5	–2.0	635.0	585.0	–2.0	**455.3**	**420.0**	**–1.9**
Louisiana	341.2	276.5	–4.7	597.2	498.4	–4.1	**449.3**	**369.0**	**–4.5**
Maine	294.9	268.0	–2.3	554.8	474.2	–3.6	**404.2**	**356.7**	**–2.9**
Maryland	247.0	226.3	–2.1	430.8	393.0	–2.2	**323.4**	**296.6**	**–2.1**
Massachusetts	282.4	243.6	–3.4	524.6	446.3	–3.7	**381.9**	**327.8**	**–3.5**
Michigan	358.1	316.8	–2.9	612.8	527.2	–3.5	**466.0**	**406.8**	**–3.2**
Minnesota	242.1	194.8	–4.9	518.9	423.8	–4.6	**358.3**	**293.0**	**–4.6**
Mississippi	292.4	281.6	–0.9	557.1	510.7	–2.1	**404.2**	**379.1**	**–1.6**
Missouri	339.4	327.7	–0.9	632.6	569.5	–2.5	**460.2**	**428.9**	**–1.7**
Montana	215.5	156.7	–6.8	454.5	367.2	–4.8	**321.3**	**249.9**	**–5.6**
Nebraska	244.1	208.9	–3.6	501.5	442.0	–3.0	**351.2**	**307.3**	**–3.1**
Nevada	216.8	224.3	0.9	401.8	383.1	–1.2	**299.8**	**299.0**	**–0.1**
New Hampshire	266.8	249.3	–1.6	529.5	461.6	–3.2	**376.1**	**338.2**	**–2.5**

New Jersey	340.7	300.5	–2.9	576.7	514.5	–2.7	**439.1**	**390.6**	**–2.8**
New Mexico	198.5	162.7	–4.5	331.3	289.4	–3.2	**258.9**	**218.3**	**–3.9**
New York	425.0	406.3	–1.1	698.9	638.8	–2.1	**537.2**	**502.0**	**–1.6**
North Carolina	307.1	274.0	–2.7	609.8	544.8	–2.7	**431.7**	**385.4**	**–2.7**
North Dakota	235.9	229.4	–0.7	534.8	484.5	–2.4	**367.1**	**340.2**	**–1.8**
Ohio	344.3	307.8	–2.7	629.7	553.8	–3.0	**461.3**	**410.5**	**–2.8**
Oklahoma	337.6	307.8	–2.2	648.4	602.0	–1.8	**468.1**	**434.0**	**–1.8**
Oregon	264.2	216.2	–4.5	529.9	425.8	–4.9	**378.7**	**307.9**	**–4.7**
Pennsylvania	321.4	296.1	–2.0	577.8	506.9	–3.1	**427.5**	**384.9**	**–2.5**
Rhode Island	323.9	288.4	–2.7	584.4	535.3	–2.1	**426.9**	**391.1**	**–2.1**
South Carolina	315.2	288.3	–2.1	583.1	528.5	–2.3	**427.6**	**388.4**	**–2.3**
South Dakota	283.7	243.3	–3.6	576.3	522.8	–2.3	**409.7**	**366.8**	**–2.6**
Tennessee	326.0	310.6	–1.2	643.0	582.9	–2.3	**456.7**	**422.2**	**–1.9**
Texas	289.8	270.2	–1.7	538.0	482.8	–2.6	**394.8**	**361.0**	**–2.1**
Utah	201.2	175.7	–3.2	377.3	346.2	–2.1	**277.6**	**251.5**	**–2.4**
Vermont	255.4	226.3	–2.8	483.9	468.9	–0.8	**354.9**	**330.5**	**–1.7**
Virginia	275.4	236.9	–3.5	511.1	452.5	–2.9	**373.9**	**326.7**	**–3.2**
Washington	234.6	199.3	–3.8	444.0	388.3	–3.1	**325.3**	**282.7**	**–3.3**
West Virginia	337.8	307.8	–2.2	626.8	537.9	–3.5	**458.0**	**404.7**	**–2.9**
Wisconsin	306.8	255.9	–4.1	579.0	499.5	–3.4	**422.8**	**360.4**	**–3.7**
Wyoming	216.7	208.9	–0.9	495.5	435.4	–3.0	**335.3**	**310.4**	**–1.9**
Total	**311.7**	**281.8**	**–2.4**	**560.4**	**497.8**	**–2.8**	**416.3**	**373.6**	**–2.6**

*Per 100,000 population, adjusted to the 1980 U.S. standard population.

†*International Classification of Diseases, Ninth Revision*, codes 410–414.9.

Ischemic Heart Disease — Continued

receive medical care for treatment of other conditions and risk factors, including hypertension, hypercholesterolemia, and diabetes. For example, in 1988, the prevalence of leisure-time physical inactivity in 37 states correlated positively with IHD death rates (*7*), and in 1960, per capita cigarette sales in 44 states also correlated directly with IHD mortality (*8*). These findings indicate the potential for reducing state-specific IHD death rates through statewide promotion of public health policies and legislation that encourages and enables healthy living and working conditions.

Strategies for further reducing the substantial burden of IHD mortality in all states should include improving understanding of the socioeconomic, behavioral, and medical determinants of state variation in IHD death rates. The slowing of declines in IHD death rates underscores the need for innovative approaches to the prevention of IHD, and the intensification of current programs and policies that promote widespread accessibility and adoption of low-fat and high-fiber foods; incentives for smoking cessation; opportunities for leisure-time physical activity; and use of medical-care resources to prevent hypertension, diabetes, and hypercholesterolemia.

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Estimated Expenditures for Essential Public Health Services — Selected States, Fiscal Year 1995

Essential public health services are activities that public health departments and other partners undertake to protect and ensure the health of the public. To characterize expenditures for those services and to distinguish within them expenditures for personal health-care services from community-based health services directed toward populations, the Public Health Service (PHS) and the Public Health Foundation surveyed senior health officials in eight states (Arizona, Iowa, Louisiana, New York, Oregon, Rhode Island, Texas, and Washington [combined 1995 population: 57.8 million]*)

*Three states reported expenditures for 1994 and six for 1995. Illinois also was surveyed but is excluded from all analyses reported here because of missing local health department data.

Essential Public Health Services — Continued

(*1*). This report summarizes the results of that survey, which indicate that spending on community-based health services is a small proportion of spending on essential services and an even smaller proportion of total health-care expenditures.

The eight states were selected to reflect geographic and population diversity and the scope of public health responsibilities and differing organizational relations among their health agencies. Senior public health officials in each state used standard forms and objectives to provide state-specific total public health expenditures and expenditures associated with the 10 essential public health services (see box). Expenditures for the sixth essential service were subdivided: linking persons to needed personal services was separated from assuring the provision of care when otherwise unavailable. Respondents provided estimates of expenditures by public health, mental health, substance abuse, and environmental agencies for essential services during fiscal year 1994 or 1995. Mental health expenditures were based on fiscal year 1993 data collected by the National Association of State Mental Health Program Directors.

During 1994 or 1995, the eight states spent an estimated $8.0 billion on essential public health services; personal health care accounted for $5.5 billion (69%) of this total. Per capita expenditures for essential public health services by state and local public health agencies ranged from $51 to $219 (median: $123). Of these expenditures, per capita expenditures for personal health-care services ranged from $29 to $169 (median: $72). Mental health expenditures constituted 42%–88% (median: 70%) of personal health-care expenditures. Expenditures for community-based health services

Public Health Responsibilities and Essential Public Health Services, 1994

Public Health Responsibilities:

- Prevent epidemics and the spread of disease.
- Protect against environmental hazards.
- Prevent injuries.
- Promote and encourage healthy behaviors and mental health.
- Respond to disasters and assist communities in recovery.
- Assure the quality and accessibility of health services.

Essential Public Health Services:

- Monitor health status to identify and solve community health problems.
- Diagnose and investigate health problems and health hazards in the community.
- Inform, educate, and empower people about health issues.
- Mobilize community partnerships and actions to identify and solve health problems.
- Enforce laws and regulations that protect health and ensure safety.
- Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
- Assure a competent public health and personal health-care workforce.
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
- Develop policies and plans that support individual and community health problems.
- Research for new insights and innovative solutions to health problems.

Source: Essential Public Health Services Work Group.

Essential Public Health Services — Continued

were $16 to $53 (median: $31) per capita or 0.6% to 1.9% (median: 1.2%) of total 1993 health-care expenditures (*2*) in each of the eight states.

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Editorial Note: The findings in this report indicate the predominance of personal health services in the public health systems of the states participating in this survey: more than $2 of every $3 spent by the eight states on essential public health services was for personal health-care services. Spending for population-based services accounted for only 1% of total health-care expenditures. These findings provide baseline estimates of public health expenditures, which can be used to develop policy and determine resource allocations.

The findings in this report are subject to at least three limitations. First, the estimated expenditures are based on data from a small, nonrandom sample of states that may not be representative of all states. In particular, the availability and use of resources for essential public health services may vary in relation to public priorities, revenue sources, and other factors. Second, although the essential services were explicitly defined, there were state-specific differences in statutory responsibilities and organization of state public health agencies that in turn were associated with variations in expenditures for and interpretations of the essential public health services. Finally, the ability of the eight states to compile local expenditure data varied. PHS is refining the methods used to estimate expenditures for essential public health services and will directly estimate local essential public health service expenditures.

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Community-Based HIV Prevention in Presumably Underserved Populations — Colorado Springs, Colorado, July–September 1995

Persons whose behaviors may increase their risk for infection with human immunodeficiency virus (HIV) but who may be underserved by existing HIV prevention and testing programs (in part because of limited access) include those who are homeless (*1,2*), chemically dependent but not in treatment (*3,4*), and mentally ill (*5*). To assess the prevalence of high-risk behaviors for HIV infection, the acceptance of HIV counseling and testing, and HIV seropositivity in such populations in Colorado Springs, Colorado (1995 population: 465,885), the El Paso County Department of Health and Environment (EPCDHE) conducted a study during July–September 1995. This report summarizes the results of the study, which indicate that such presumably underserved persons are accessible, commonly report high-risk behaviors, and previously have been tested for HIV infection and that social isolation, in part, accounted for the low seroprevalence of HIV in this study population.

During July–September 1995, two sexually transmitted diseases/HIV public health nurses, working as a team to ensure safety, visited seven community organizations, public parks, and street intersections to identify homeless persons, illicit drug users not in treatment, and persons who may have been mentally ill and to offer them confidential HIV counseling and testing. These services were offered on Mondays and Tuesdays during July–September. After obtaining signed, informed consent for the test and survey, participants were administered a questionnaire to obtain information about demographics, HIV-risk behaviors and testing history, illicit drug use, and sociosexual connections (i.e., composition of family and number of drug and sex partners).

A total of 224 persons agreed to participate, including 60 (27%) who were recruited at two homeless shelters, 53 (24%) at a soup kitchen, 56 (25%) at two outpatient mental-health centers, 12 (5%) at a community center, 19 (8%) at a detoxification center, and 24 (11%) at outdoor sites frequented by homeless persons. The average age of participants was 34.7 years (range: 14–69 years); most (67%) were men, white (67%), unemployed (58%), or marginally employed (38%). Nearly half (44%) reported being homeless, and 74% had lived in the Colorado Springs area for at least the preceding 12 months. Most (85%) were single, and 44% had never had a spouse or children; of 124 who had a spouse or children, 90 (73%) were not living with either at the time of the survey. Participants recruited at health-care facilities (i.e., mental health and detoxification centers) were less likely than those recruited elsewhere to be male (56% versus 71%; $p<0.05$), homeless (15% versus 58%; $p<0.01$), and to report ever having injected drugs (14% versus 30%; $p<0.05$).

Overall, 114 (51%) participants were classified as having high-risk behavior for HIV infection (defined as having ever injected drugs, engaged in receptive anal intercourse, or having had more than two sex partners during the preceding 6 months). A total of 53 (24%) reported a history of injecting-drug use; 37 (17%), receptive anal sex; and 55 (25%), multiple sex partners. Receptive anal intercourse was reported more commonly by women (25 [33%]) than by men (12 [8%]) ($p<0.01$).

Of the 53 participants who reported injecting-drug use, a review of EPCDHE records indicated that nine (17%) had ever been patients at the EPCDHE substance-abuse clinic (the only such facility in the region), including two who were in treatment at the time of the survey. Of 219 persons who responded to questions regarding sexual activity during the 6 months preceding the study, 64 (29%) reported no sex partners; of 117 who reported using illegal drugs, 51 (44%) reported doing so alone. Approximately one fourth (58 [26%]) reported condom use at last sexual intercourse.

Of the 224 participants, 212 (95%) consented to and completed HIV counseling and testing; two (1%) were newly tested and identified as seropositive, and one requested and received confirmation of a previously positive HIV test. Of the 212 persons tested, 147 (69%) reported having been tested for HIV since 1985 (63% as either plasma or blood donors), and 61 (29%) reported the current test as their first (data were missing for four). The likelihood of reporting previous testing was higher for participants reporting high-risk behavior (77%) than for those reporting low-risk behaviors (63%; $p<0.05$).

Community-Based HIV Prevention — Continued

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Editorial Note: The findings in this report indicate that, among high-risk populations in Colorado Springs that would traditionally be characterized as underserved, most had been tested previously for HIV. The EPCDHE strategy of using community organizations that provide medical and/or social services to and outdoor locations frequented by these populations was successful in locating such persons. The sampling process used for this study involved geographic targeting and onsite recruitment of available participants and is commonly used to survey elusive populations (*6*). The strong associations between homelessness, substance abuse, social isolation, and mental illness (*5,7,8*) indicate that, using this method, EPCDHE successfully contacted socially marginalized persons.

The high proportion of persons who reported no recent sex partners, using drugs alone, homelessness, unemployment, and single marital status indicates the prevalence of relative social isolation among participants. A previous assessment of the social networks of heterosexuals at high risk for HIV infection in Colorado Springs suggested that network structure may be a determinant for HIV seroprevalence (*9*): specifically, low HIV seroprevalence was documented by social network analysis to be associated with social marginalization of HIV-infected persons within their social networks. The findings in this report underscore the belief that, despite their risk factors, persons who are socially isolated may not often come in contact with persons who are infected with HIV.

The findings in this report are subject to at least three limitations. First, restriction of recruitment to daytime hours and to summer months and the inability to determine the total number of socially marginalized persons in Colorado Springs may have resulted in an undersampling of this population. Second, persons who may have been tested elsewhere for HIV or who knew or suspected that they were HIV-infected may have been less likely to participate. Finally, participants in this study may have been likely to misperceive questions or misreport answers (*5*).

The findings in this report indicate that high proportions of socially marginalized persons in Colorado Springs reported HIV high-risk behaviors and previous HIV testing and were willing to use HIV outreach services; despite the presence of high-risk behaviors, the prevalence of HIV infection was low. Groups such as those in Colorado Springs can be reached using targeted sampling methods in settings where strict random selection is not possible (*10*). Although random sampling was not possible in this study setting, the approach used by EPCDHE was inexpensive and efficient. While these findings may not be generalizable to groups in other locations, assessments based on this approach can be used to track endemic and possibly epidemic HIV transmission and serve as an evaluation tool for community intervention programs.

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Community-Based HIV Prevention — Continued

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Performance Evaluation Programs for Determining HIV-1 Viral Loads, Testing for HIV p24 Antigen, and Identifying *Mycobacterium tuberculosis* Using Nucleic Acid Amplification Tests

CDC's Division of Laboratory Systems, Public Health Practice Program Office, is implementing three new laboratory performance evaluation (PE) programs. The first assesses the performance of laboratories that perform tests to determine the viral RNA copy number (viral load) in the blood of persons infected with human immunodeficiency virus type 1 (HIV-1); the second assesses the performance of laboratories that perform HIV p24 antigen (Ag) testing; and the third assesses the performance of laboratories that perform nucleic acid amplification (NAA) tests for *Mycobacterium tuberculosis*.

Results of viral load determinations are being used by physicians treating HIV-infected patients to make decisions regarding initiation of antiretroviral therapy and to determine whether current antiretroviral therapy is effective or whether changes in antiretroviral therapy should be implemented based on the amount of virus in the blood of HIV-infected patients (*1–4*). In June 1996, the Food and Drug Administration (FDA) approved a reverse-transcriptase polymerase chain reaction procedure for determining viral load to assess patient prognosis.

In August 1995, FDA recommended that all facilities licensed for performing blood collections perform p24 Ag testing in addition to the HIV-antibody screening of blood-bank donors. The addition of p24 Ag testing would decrease the window period (7–11 days) for detecting donors recently infected with HIV when compared with the current protocol for antibody testing (i.e., enzyme immunoassay screening followed by Western blot supplemental testing). In 1996, FDA approved two p24 Ag tests.

Traditional laboratory tests for tuberculosis may require several weeks to complete; NAA tests that amplify *M. tuberculosis* DNA or RNA can identify within 1 day the organism directly in patient specimens that are positive for acid-fast bacilli by microscopy (*5,6*). Two NAA tests for *M. tuberculosis* complex have been approved by FDA, and other tests have been submitted for review. CDC has published interim guidelines (*7*) for FDA-approved *M. tuberculosis* NAA test usage, interpretation, and limitations. Laboratories using the FDA-approved *M. tuberculosis* NAA testing methods are

Notice to Readers — Continued

encouraged to enroll in this PE program for information on evolving practice and performance issues (*8*) associated with these tests. Depending on availability of program resources, laboratories that use NAA tests developed in-house (*9*) also may enroll.

In each program, PE samples will be sent to participating laboratories twice yearly. After laboratories have tested the samples and reported their results (which are treated as confidential) to CDC, reports will be prepared and sent to participants, including aggregate testing results reported by other laboratories that used identical or similar test kits to test identical PE samples. After comparing their results with the aggregate results, laboratories can determine whether problems exist in their testing practices and, if applicable, correct them.

As with all PE programs at CDC, these new programs are strictly voluntary and are free to enrolled laboratory participants. The PE programs are designed to 1) establish a database containing information about the physical characteristics and testing practices of laboratories that perform viral load and p24 Ag tests for HIV and NAA tests to detect *M. tuberculosis*, 2) evaluate testing quality and to delineate factors that lead to high-quality testing, 3) monitor changes in testing in these testing sites over time, and 4) identify problems that occur in testing to maintain or improve testing quality.

For laboratories interested in participating in the new PE programs for viral load and p24 Ag testing, or one of the existing PE programs for HIV-1 antibody testing, human T-lymphotropic virus types I and II antibody testing, and T-lymphocyte immunophenotyping by flow cytometry and alternate methods, an enrollment form and additional information are available by calling (770) 488-4366 or (770) 488-4147 or faxing (770) 488-7693. For laboratories interested in participating in the new PE program for *M. tuberculosis* NAA tests or the current PE program involving *M. tuberculosis* drug-susceptibility testing, an enrollment form and additional information are available by calling (770) 488-4674 or faxing (770) 488-7663.

Reported by: Div of Laboratory Systems, Public Health Practice Program Office, CDC.

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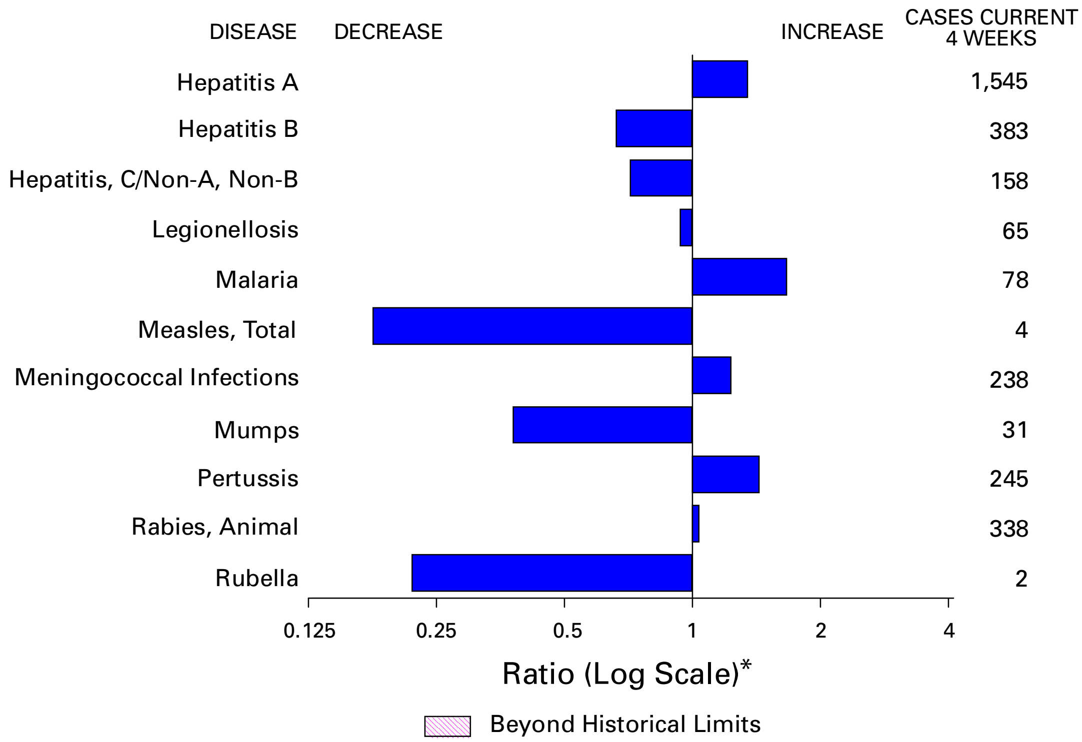
FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending February 15, 1997, with historical data — United States



*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 the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending February 15, 1997 (7th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	-
Brucellosis	4	Poliomyelitis, paralytic	-
Cholera	-	Psittacosis	2
Congenital rubella syndrome	1	Rabies, human	-
Cryptosporidiosis*	108	Rocky Mountain spotted fever (RMSF)	8
Diphtheria	-	Streptococcal disease, invasive Group A	99
Encephalitis: California*	-	Streptococcal toxic-shock syndrome*	5
eastern equine*	-	Syphilis, congenital¶	-
St. Louis*	-	Tetanus	2
western equine*	-	Toxic-shock syndrome	13
Hansen Disease	10	Trichinosis	2
Hantavirus pulmonary syndrome*†	-	Typhoid fever	27
Hemolytic uremic syndrome, post-diarrheal*	7	Yellow fever	-
HIV infection, pediatric*§	19		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention (NCHSTP), last update January 28, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending February 15, 1997, and February 17, 1996 (7th Week)

Reporting Area	AIDS*		Chlamydia		*Escherichia coli* O157:H7 NETSS[†]	*Escherichia coli* O157:H7 PHLIS[§]	Gonorrhea		Hepatitis C/NA,NB	
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	5,109	6,331	33,897	43,828	108	42	25,380	41,867	258	343
NEW ENGLAND	134	332	1,805	2,427	10	5	642	1,051	1	8
Maine	13	7	49	-	-	-	3	3	-	-
N.H.	1	14	73	76	-	-	29	15	-	-
Vt.	7	5	49	59	1	1	8	14	-	4
Mass.	62	246	965	917	8	4	317	381	1	4
R.I.	19	9	290	311	-	-	78	73	-	-
Conn.	32	51	379	1,064	1	-	207	565	-	-
MID. ATLANTIC	1,921	1,439	2,459	2,680	8	-	1,559	3,596	22	15
Upstate N.Y.	113	238	N	N	5	-	134	2	13	11
N.Y. City	1,039	709	-	1,932	1	-	-	1,650	-	1
N.J.	468	353	707	748	2	-	442	448	-	-
Pa.	301	139	1,752	-	N	-	983	1,496	9	3
E.N. CENTRAL	242	494	5,522	12,140	12	7	4,058	8,506	62	59
Ohio	57	143	1,484	2,700	8	6	1,156	2,054	4	2
Ind.	25	50	563	1,196	1	-	535	986	1	-
Ill.	115	163	1,464	3,454	-	-	707	2,518	-	13
Mich.	29	106	1,558	3,281	3	-	1,366	2,221	57	44
Wis.	16	32	453	1,509	N	1	294	727	-	-
W.N. CENTRAL	127	214	2,368	3,547	19	9	1,057	1,845	14	8
Minn.	17	56	-	562	10	7	U	-	-	-
Iowa	38	17	605	59	6	-	157	25	6	1
Mo.	54	87	1,143	1,586	1	-	710	1,357	2	5
N. Dak.	2	-	81	90	2	1	5	5	1	-
S. Dak.	-	2	127	123	-	-	18	19	-	-
Nebr.	15	15	60	500	-	-	6	91	-	2
Kans.	1	37	352	627	-	1	161	348	5	-
S. ATLANTIC	1,239	1,522	8,989	5,849	10	-	10,680	14,379	27	17
Del.	20	32	-	-	-	-	146	226	-	-
Md.	166	70	649	616	-	-	1,606	1,874	3	-
D.C.	55	65	N	N	-	-	686	612	-	-
Va.	130	94	1,486	1,631	N	-	1,242	1,384	1	1
W. Va.	14	19	-	-	N	-	73	45	-	3
N.C.	59	1	2,502	U	2	-	2,240	2,686	8	5
S.C.	104	12	922	U	-	-	1,500	1,888	9	1
Ga.	183	214	711	1,001	3	-	1,024	3,230	U	-
Fla.	508	1,015	2,719	2,601	5	-	2,163	2,434	6	7
E.S. CENTRAL	134	173	3,069	3,627	12	3	3,201	4,215	37	65
Ky.	23	61	807	972	3	-	579	582	1	-
Tenn.	59	57	1,475	1,491	8	3	1,376	1,462	14	65
Ala.	37	35	787	1,135	-	-	1,246	1,880	1	-
Miss.	15	20	-	29	1	-	-	291	21	-
W.S. CENTRAL	420	579	1,633	3,491	2	1	1,839	4,193	23	39
Ark.	18	44	156	190	2	-	314	592	1	-
La.	64	171	760	-	-	1	917	1,173	14	7
Okla.	32	2	717	868	-	-	608	600	-	25
Tex.	306	362	-	2,433	-	-	-	1,828	8	7
MOUNTAIN	122	160	2,462	1,409	18	13	887	1,116	48	92
Mont.	7	2	85	-	-	-	6	2	3	3
Idaho	2	1	195	190	-	-	16	9	9	21
Wyo.	1	-	61	85	-	-	6	6	19	27
Colo.	24	84	-	-	12	5	216	283	9	10
N. Mex.	5	8	569	506	3	1	138	139	3	19
Ariz.	30	37	1,105	64	N	5	387	521	4	7
Utah	10	22	154	180	1	-	19	45	-	4
Nev.	43	6	293	384	2	2	99	111	1	1
PACIFIC	770	1,418	5,590	8,658	17	2	1,457	2,966	24	40
Wash.	45	65	1,174	1,310	1	-	312	358	1	5
Oreg.	30	92	194	726	3	2	31	32	3	2
Calif.	682	1,251	3,924	6,334	13	-	1,002	2,435	-	13
Alaska	10	3	177	55	-	-	71	65	-	1
Hawaii	3	7	121	233	N	-	41	76	20	19
Guam	-	-	-	55	N	-	-	16	-	-
P.R.	144	248	N	N	-	U	46	28	-	6
V.I.	4	1	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	-	7	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention, last update January 28, 1997.

[†]National Electronic Telecommunications System for Surveillance.

[§]Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending February 15, 1997, and February 17, 1996 (7th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	102	100	223	531	135	121	750	1,629	1,052	1,567	593
NEW ENGLAND	6	4	19	43	4	3	17	28	24	32	81
Maine	-	1	-	-	-	-	-	-	-	2	17
N.H.	-	-	1	-	-	-	-	-	1	-	2
Vt.	2	-	1	-	-	1	-	-	-	-	16
Mass.	3	1	8	-	3	2	8	12	7	7	10
R.I.	-	2	9	12	1	-	-	-	4	7	-
Conn.	1	N	-	31	-	-	9	16	12	16	36
MID. ATLANTIC	19	18	165	454	22	43	9	36	145	184	140
Upstate N.Y.	6	3	10	65	5	9	-	4	13	22	107
N.Y. City	-	-	1	154	9	21	-	15	76	66	-
N.J.	2	4	39	47	7	11	1	6	36	47	12
Pa.	11	11	115	188	1	2	8	11	20	49	21
E.N. CENTRAL	43	41	3	2	7	15	83	291	165	252	1
Ohio	29	14	2	1	1	1	29	120	46	46	-
Ind.	-	8	1	1	1	1	13	37	13	16	1
Ill.	-	3	-	-	-	6	14	79	103	170	-
Mich.	14	13	-	-	5	5	14	23	-	17	-
Wis.	-	3	U	U	-	2	13	32	3	3	-
W.N. CENTRAL	1	5	-	6	1	2	28	67	37	29	45
Minn.	-	-	-	-	-	-	-	4	16	6	5
Iowa	-	-	-	1	1	1	10	4	4	5	26
Mo.	1	2	-	1	-	1	14	51	9	9	6
N. Dak.	-	-	-	-	-	-	-	-	1	-	7
S. Dak.	-	-	-	-	-	-	-	-	1	5	-
Nebr.	-	3	-	-	-	-	-	3	-	-	-
Kans.	-	-	-	4	-	-	4	5	6	4	1
S. ATLANTIC	17	10	21	17	43	21	291	479	148	171	287
Del.	1	1	-	3	1	2	3	9	-	7	2
Md.	9	1	16	11	13	7	-	65	16	19	57
D.C.	1	1	3	-	3	1	15	14	6	7	1
Va.	-	2	-	-	8	5	40	58	16	1	53
W. Va.	-	1	-	2	-	-	-	1	6	10	5
N.C.	3	3	1	1	1	2	96	122	26	24	90
S.C.	-	1	-	-	3	-	51	62	27	41	12
Ga.	-	-	1	-	7	2	51	118	31	32	28
Fla.	3	-	-	-	7	2	35	30	20	30	39
E.S. CENTRAL	4	7	10	5	5	-	186	427	59	140	13
Ky.	-	3	1	2	1	-	18	32	14	26	6
Tenn.	1	2	2	3	1	-	109	114	9	28	-
Ala.	1	-	-	-	1	-	59	89	36	57	7
Miss.	2	2	7	-	2	-	-	192	-	29	-
W.S. CENTRAL	-	-	-	-	-	1	102	209	17	88	14
Ark.	-	-	-	-	-	-	11	47	11	10	3
La.	-	-	-	-	-	-	71	69	-	-	-
Okla.	-	-	-	-	-	-	20	19	6	15	11
Tex.	-	-	-	-	-	1	-	74	-	63	-
MOUNTAIN	8	7	-	-	9	6	21	24	26	70	2
Mont.	-	-	-	-	1	-	-	-	-	-	1
Idaho	-	-	-	-	-	-	-	-	-	1	-
Wyo.	-	-	-	-	1	-	-	-	1	-	-
Colo.	3	4	-	-	6	4	-	8	9	16	-
N. Mex.	-	-	-	-	-	1	-	-	-	5	-
Ariz.	3	1	-	-	-	-	18	14	13	41	1
Utah	2	-	-	-	-	1	-	-	1	-	-
Nev.	-	2	-	-	1	-	3	2	2	7	-
PACIFIC	4	8	5	4	44	30	13	68	431	601	10
Wash.	1	-	-	-	-	-	-	-	14	31	-
Oreg.	-	-	1	2	2	4	1	1	1	24	-
Calif.	3	8	4	2	42	25	12	66	378	517	10
Alaska	-	-	-	-	-	-	-	-	13	13	-
Hawaii	-	-	-	-	-	1	-	1	25	16	-
Guam	-	-	-	-	-	-	-	2	-	-	-
P.R.	-	-	-	-	1	-	18	15	-	-	2
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending February 15, 1997, and February 17, 1996 (7th Week)

Reporting Area	*H. influenzae,* invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	143	166	2,734	3,259	739	1,007	-	3	1	3	6	11
NEW ENGLAND	6	4	47	26	13	18	-	-	-	-	-	4
Maine	2	-	2	4	1	-	-	-	-	-	-	-
N.H.	1	4	3	2	1	-	-	-	-	-	-	-
Vt.	-	-	3	-	-	1	-	-	-	-	-	1
Mass.	2	-	16	10	8	1	-	-	-	-	-	3
R.I.	1	-	2	2	1	1	-	-	-	-	-	-
Conn.	-	-	21	8	2	15	-	-	-	-	-	-
MID. ATLANTIC	15	24	168	247	100	175	-	-	-	-	-	2
Upstate N.Y.	1	3	11	29	15	21	-	-	-	-	-	1
N.Y. City	5	4	62	124	40	90	-	-	-	-	-	1
N.J.	7	10	59	47	28	34	-	-	-	-	-	-
Pa.	2	7	36	47	17	30	-	-	-	-	-	-
E.N. CENTRAL	15	31	170	343	75	123	-	-	-	1	1	-
Ohio	15	18	76	143	13	16	-	-	-	-	-	-
Ind.	-	-	23	41	5	3	U	-	U	-	-	-
Ill.	-	12	-	86	-	41	-	-	-	-	-	-
Mich.	-	-	68	42	57	48	U	-	U	1	1	-
Wis.	-	1	3	31	-	15	-	-	-	-	-	-
W.N. CENTRAL	4	6	181	255	44	65	-	-	-	-	-	-
Minn.	2	-	1	-	-	-	-	-	-	-	-	-
Iowa	1	3	30	64	23	7	-	-	-	-	-	-
Mo.	1	3	96	129	13	44	-	-	-	-	-	-
N. Dak.	-	-	-	2	-	-	-	-	-	-	-	-
S. Dak.	-	-	5	9	-	-	-	-	-	-	-	-
Nebr.	-	-	11	24	1	5	-	-	-	-	-	-
Kans.	-	-	38	27	7	9	-	-	-	-	-	-
S. ATLANTIC	41	30	221	93	89	146	-	-	-	-	-	-
Del.	-	-	6	1	1	-	-	-	-	-	-	-
Md.	10	10	65	25	25	43	-	-	-	-	-	-
D.C.	2	-	4	3	6	1	-	-	-	-	-	-
Va.	2	2	21	11	10	17	-	-	-	-	-	-
W. Va.	-	-	1	3	2	3	-	-	-	-	-	-
N.C.	6	5	30	19	16	55	-	-	-	-	-	-
S.C.	3	1	11	9	7	6	-	-	-	-	-	-
Ga.	3	12	28	-	-	-	-	-	-	-	-	-
Fla.	15	-	55	22	22	21	-	-	-	-	-	-
E.S. CENTRAL	8	4	82	232	89	91	-	-	-	-	-	-
Ky.	1	-	7	4	1	6	-	-	-	-	-	-
Tenn.	7	2	38	189	57	80	-	-	-	-	-	-
Ala.	-	2	18	9	5	5	-	-	-	-	-	-
Miss.	-	-	19	30	26	U	U	-	U	-	-	-
W.S. CENTRAL	5	7	345	461	28	46	-	-	-	-	-	-
Ark.	-	-	41	71	6	6	-	-	-	-	-	-
La.	-	-	6	6	3	5	-	-	-	-	-	-
Okla.	4	7	192	253	-	7	-	-	-	-	-	-
Tex.	1	-	106	131	19	28	-	-	-	-	-	-
MOUNTAIN	7	10	547	474	113	138	-	-	-	-	-	3
Mont.	-	-	18	9	-	-	-	-	-	-	-	-
Idaho	-	1	28	65	2	15	-	-	-	-	-	-
Wyo.	-	-	3	4	6	3	-	-	-	-	-	-
Colo.	1	1	74	37	29	20	-	-	-	-	-	-
N. Mex.	1	4	33	84	37	56	-	-	-	-	-	-
Ariz.	2	2	229	128	24	14	-	-	-	-	-	-
Utah	1	1	137	106	12	24	-	-	-	-	-	-
Nev.	2	1	25	41	3	6	-	-	-	-	-	3
PACIFIC	42	50	973	1,128	188	205	-	3	1	2	5	2
Wash.	-	-	48	46	4	8	-	-	-	-	-	1
Oreg.	6	5	63	176	23	21	-	-	-	-	-	-
Calif.	34	43	847	879	154	174	-	-	1	2	2	-
Alaska	-	-	4	11	4	1	-	-	-	-	-	-
Hawaii	2	2	11	16	3	1	U	3	U	-	3	1
Guam	-	-	-	2	-	-	U	-	U	-	-	-
P.R.	-	-	4	11	9	18	U	-	U	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	-	10	-	1	-	3	U	-	U	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 24 cases among children aged <5 years, serotype was reported for 6 and of those, 4 were type b.

[†]For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending February 15, 1997, and February 17, 1996 (7th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	442	562	8	40	73	50	477	252	-	1	15
NEW ENGLAND	31	24	1	1	-	9	137	66	-	-	-
Maine	3	5	-	-	-	-	4	2	-	-	-
N.H.	3	1	-	-	-	-	23	4	-	-	-
Vt.	-	1	-	-	-	4	59	6	-	-	-
Mass.	19	4	-	-	-	-	46	54	-	-	-
R.I.	2	5	1	1	-	5	5	-	-	-	-
Conn.	4	8	-	-	-	-	-	-	-	-	-
MID. ATLANTIC	24	47	2	4	11	4	20	29	-	1	1
Upstate N.Y.	4	4	-	-	2	-	11	19	-	-	-
N.Y. City	4	9	-	-	2	-	2	6	-	1	-
N.J.	6	12	-	-	2	-	-	2	-	-	1
Pa.	10	22	2	4	5	4	7	2	-	-	-
E.N. CENTRAL	40	73	1	7	17	4	44	53	-	-	-
Ohio	31	29	1	3	10	4	34	24	-	-	-
Ind.	6	6	U	2	1	U	-	2	U	-	-
Ill.	-	23	-	1	1	-	3	3	-	-	-
Mich.	3	4	U	1	5	U	7	5	U	-	-
Wis.	-	11	-	-	-	-	-	19	-	-	-
W.N. CENTRAL	35	52	-	2	2	9	21	5	-	-	-
Minn.	2	-	-	-	-	7	10	1	-	-	-
Iowa	10	9	-	2	-	2	8	-	-	-	-
Mo.	12	29	-	-	-	-	-	3	-	-	-
N. Dak.	-	1	-	-	2	-	1	-	-	-	-
S. Dak.	3	2	-	-	-	-	1	-	-	-	-
Nebr.	3	4	-	-	-	-	1	1	-	-	-
Kans.	5	7	-	-	-	-	-	-	-	-	-
S. ATLANTIC	111	76	3	3	9	10	33	16	-	-	-
Del.	2	1	-	-	-	-	-	-	-	-	-
Md.	10	10	-	-	4	6	25	13	-	-	-
D.C.	1	2	-	-	-	-	2	-	-	-	-
Va.	6	5	1	1	2	2	2	-	-	-	-
W. Va.	1	3	-	-	-	1	1	-	-	-	-
N.C.	20	12	-	-	-	-	-	-	-	-	-
S.C.	22	15	-	-	2	1	2	-	-	-	-
Ga.	22	23	-	-	1	-	-	1	-	-	-
Fla.	27	5	2	2	-	-	1	2	-	-	-
E.S. CENTRAL	42	48	-	6	3	1	13	7	-	-	-
Ky.	6	6	-	-	-	-	-	5	-	-	-
Tenn.	18	12	-	2	-	-	3	1	-	-	-
Ala.	13	16	-	2	3	1	6	1	-	-	-
Miss.	5	14	U	2	-	U	4	-	U	-	N
W.S. CENTRAL	22	69	-	3	3	-	4	3	-	-	-
Ark.	8	7	-	-	-	-	3	2	-	-	-
La.	2	15	-	-	3	-	-	1	-	-	-
Okla.	4	3	-	-	-	-	-	-	-	-	-
Tex.	8	44	-	3	-	-	1	-	-	-	-
MOUNTAIN	29	40	-	2	3	8	123	27	-	-	-
Mont.	1	1	-	-	-	-	-	2	-	-	-
Idaho	3	3	-	-	-	5	81	-	-	-	-
Wyo.	-	2	-	-	-	-	3	-	-	-	-
Colo.	2	4	-	1	-	3	29	-	-	-	-
N. Mex.	7	9	N	N	N	-	6	9	-	-	-
Ariz.	11	13	-	-	-	-	4	3	-	-	-
Utah	3	3	-	1	-	-	-	-	-	-	-
Nev.	2	5	-	-	3	-	-	13	-	-	-
PACIFIC	108	133	1	12	25	5	82	46	-	-	14
Wash.	10	7	-	2	2	-	13	5	-	-	-
Oreg.	33	24	-	-	-	-	3	15	-	-	-
Calif.	65	98	1	6	17	5	64	24	-	-	14
Alaska	-	2	-	-	1	-	1	-	-	-	-
Hawaii	-	2	U	4	5	U	1	2	U	-	-
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	-	-	U	-	-	U	-	-	U	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending February 15, 1997 (7th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	646	477	107	37	14	11	45
Boston, Mass.	136	83	30	11	5	7	11
Bridgeport, Conn.	58	48	6	2	1	1	4
Cambridge, Mass.	25	18	4	3	-	-	2
Fall River, Mass.	33	27	4	1	1	-	-
Hartford, Conn.	54	41	8	5	-	-	3
Lowell, Mass.	32	26	5	1	-	-	3
Lynn, Mass.	20	16	2	2	-	-	1
New Bedford, Mass.	25	23	2	-	-	-	3
New Haven, Conn.	65	43	14	3	3	2	3
Providence, R.I.	61	47	9	4	1	-	-
Somerville, Mass.	7	5	2	-	-	-	-
Springfield, Mass.	33	25	4	2	1	1	4
Waterbury, Conn.	31	25	6	-	-	-	2
Worcester, Mass.	66	50	11	3	2	-	9
MID. ATLANTIC	2,343	1,679	381	202	49	32	127
Albany, N.Y.	51	38	6	4	-	3	2
Allentown, Pa.	24	18	4	1	1	-	1
Buffalo, N.Y.	U	U	U	U	U	U	U
Camden, N.J.	43	31	6	3	2	1	3
Elizabeth, N.J.	20	16	2	2	-	-	-
Erie, Pa.§	45	37	7	1	-	-	2
Jersey City, N.J.	44	30	6	5	1	2	1
New York City, N.Y.	1,335	940	225	126	28	16	56
Newark, N.J.	59	24	17	13	3	2	4
Paterson, N.J.	25	18	4	2	1	-	1
Philadelphia, Pa.	295	221	47	15	10	2	20
Pittsburgh, Pa.§	56	37	8	8	1	2	6
Reading, Pa.	10	8	2	-	-	-	2
Rochester, N.Y.	122	94	15	9	1	3	6
Schenectady, N.Y.	28	22	5	1	-	-	2
Scranton, Pa.§	39	29	5	5	-	-	1
Syracuse, N.Y.	92	73	15	2	1	1	13
Trenton, N.J.	45	34	6	5	-	-	5
Utica, N.Y.	10	9	1	-	-	-	2
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,279	1,583	407	161	65	62	164
Akron, Ohio	48	38	5	3	-	2	-
Canton, Ohio	50	44	4	1	-	1	4
Chicago, Ill.	500	313	93	61	19	13	60
Cincinnati, Ohio	136	96	29	6	3	2	15
Cleveland, Ohio	167	116	27	7	2	15	4
Columbus, Ohio	217	143	44	15	7	8	20
Dayton, Ohio	165	128	27	2	6	2	8
Detroit, Mich.	208	126	49	24	6	3	5
Evansville, Ind.	33	27	6	-	-	-	-
Fort Wayne, Ind.	47	35	5	3	3	1	4
Gary, Ind.	21	9	10	1	1	-	-
Grand Rapids, Mich.	71	53	13	2	2	1	6
Indianapolis, Ind.	122	82	19	14	3	4	10
Lansing, Mich.	39	27	8	1	2	1	3
Milwaukee, Wis.	127	98	17	8	2	2	6
Peoria, Ill.	34	29	5	-	-	-	2
Rockford, Ill.	47	36	9	-	-	2	1
South Bend, Ind.	54	36	12	4	2	-	5
Toledo, Ohio	108	79	17	4	3	5	8
Youngstown, Ohio	85	68	8	5	4	-	3
W.N. CENTRAL	771	576	96	46	21	17	45
Des Moines, Iowa	39	30	4	3	2	-	4
Duluth, Minn.	U	U	U	U	U	U	U
Kansas City, Kans.	39	31	2	5	1	-	1
Kansas City, Mo.	133	88	15	9	4	2	7
Lincoln, Nebr.	34	25	5	1	1	2	2
Minneapolis, Minn.	195	165	19	9	-	2	13
Omaha, Nebr.	92	64	16	6	3	3	10
St. Louis, Mo.	109	80	16	6	5	2	-
St. Paul, Minn.	61	47	7	2	1	4	6
Wichita, Kans.	69	46	12	5	4	2	2
S. ATLANTIC	1,235	783	241	132	38	41	87
Atlanta, Ga.	170	99	41	22	7	1	8
Baltimore, Md.	274	167	48	39	6	14	22
Charlotte, N.C.	41	30	9	2	-	-	2
Jacksonville, Fla.	142	92	27	20	1	2	5
Miami, Fla.	106	68	22	12	4	-	1
Norfolk, Va.	57	37	7	6	3	4	8
Richmond, Va.	U	U	U	U	U	U	U
Savannah, Ga.	70	46	15	4	5	-	10
St. Petersburg, Fla.	41	32	4	2	2	1	2
Tampa, Fla.	192	140	40	5	6	1	24
Washington, D.C.	130	63	26	19	4	18	5
Wilmington, Del.	12	9	2	1	-	-	-
E.S. CENTRAL	682	466	136	43	21	16	71
Birmingham, Ala.	16	14	1	-	1	-	1
Chattanooga, Tenn.	70	48	10	6	5	1	5
Knoxville, Tenn.	89	56	24	5	2	2	15
Lexington, Ky.	73	49	14	6	1	3	7
Memphis, Tenn.	198	141	36	12	7	2	19
Mobile, Ala.	46	30	9	3	4	-	2
Montgomery, Ala.	42	30	8	2	-	2	4
Nashville, Tenn.	148	98	34	9	1	6	18
W.S. CENTRAL	1,729	1,174	318	152	40	43	134
Austin, Tex.	96	64	16	11	3	2	5
Baton Rouge, La.	32	20	7	2	-	3	3
Corpus Christi, Tex.	81	62	8	11	-	-	12
Dallas, Tex.	224	147	42	26	3	6	9
El Paso, Tex.	86	62	13	5	2	4	6
Ft. Worth, Tex.	159	117	23	13	3	3	17
Houston, Tex.	441	283	97	44	9	8	32
Little Rock, Ark.	86	57	15	8	3	3	6
New Orleans, La.	80	47	18	7	8	-	-
San Antonio, Tex.	249	172	49	14	7	7	22
Shreveport, La.	66	47	11	4	-	4	8
Tulsa, Okla.	129	96	19	7	2	3	14
MOUNTAIN	817	593	132	47	26	19	92
Albuquerque, N.M.	124	93	21	5	3	2	12
Boise, Idaho	U	U	U	U	U	U	U
Colo. Springs, Colo.	52	36	9	5	-	2	4
Denver, Colo.	118	83	23	5	5	2	13
Las Vegas, Nev.	U	U	U	U	U	U	U
Ogden, Utah	33	25	2	3	1	2	3
Phoenix, Ariz.	169	115	34	8	11	1	19
Pueblo, Colo.	23	16	5	-	2	-	4
Salt Lake City, Utah	110	79	15	8	4	4	10
Tucson, Ariz.	188	146	23	13	-	6	27
PACIFIC	1,773	1,296	288	115	42	32	166
Berkeley, Calif.	29	22	5	1	-	1	-
Fresno, Calif.	89	68	11	7	1	2	5
Glendale, Calif.	26	20	6	-	-	-	3
Honolulu, Hawaii	78	61	13	1	3	-	7
Long Beach, Calif.	66	48	11	4	2	1	9
Los Angeles, Calif.	528	377	82	42	16	11	31
Pasadena, Calif.	34	27	2	-	3	2	3
Portland, Oreg.	145	97	23	15	5	5	12
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	168	121	32	12	2	1	31
San Francisco, Calif.	140	111	24	1	2	2	19
San Jose, Calif.	189	130	39	13	4	3	25
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	123	90	20	8	2	3	3
Spokane, Wash.	72	60	6	4	1	1	11
Tacoma, Wash.	86	64	14	7	1	-	7
TOTAL	12,275¶	8,627	2,106	935	316	273	931

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 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.

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The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy on Friday of each week, send an e-mail message to *listserv@listserv.cdc.gov*. The body content should read *SUBscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at *http://www.cdc.gov/* or from CDC's file transfer protocol server at *ftp.cdc.gov*. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800.

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 following Friday. Address inquiries about the *MMWR* Series, including material to be considered for publication, to: Editor, *MMWR* Series, Mailstop C-08, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333; telephone (404) 332-4555.

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