

# **MMWR**<sup>TM</sup>

## **MORBIDITY AND MORTALITY WEEKLY REPORT**

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### **Prevalence of Selected Cardiovascular Disease Risk Factors Among American Indians and Alaska Natives — United States, 1997**

Heart disease and stroke, the principal causes of cardiovascular disease (CVD), are the first and fifth leading causes of death among American Indians and Alaska Natives (AI/AN) (1,2). Risk factors for CVD frequently cluster, which may increase CVD risk multiplicatively (3). To characterize the prevalence of risk factors for CVD (i.e., hypertension, current cigarette smoking, high cholesterol, obesity, and diabetes) among AI/AN, CDC analyzed data from the 1997 Behavioral Risk Factor Surveillance System (BRFSS). This report summarizes the results of that analysis, which indicated that 63.7% of AI/AN men and 61.4% of AI/AN women who participated in the survey had one or more CVD risk factors.

BRFSS is an ongoing state-based, random-digit-dialed telephone survey of the U.S., noninstitutionalized civilian population. Self-reported data were analyzed for the 1820 AI/AN aged  $\geq 18$  years who participated in the 1997 BRFSS in 50 states and the District of Columbia (DC). Identification of race as AI/AN was based on response to the question, "What is your race?" Awareness of hypertension, high cholesterol, and diabetes was determined by the response to, "Have you even been told by a doctor or other health professional that you have (hypertension, high cholesterol, diabetes)." Current smoking status was defined as having smoked at least 100 cigarettes during one's lifetime and still smoking at the time of the survey. Self-reported data on height and weight were used to calculate body mass index (BMI). Obesity was defined as a BMI  $\geq 30$  kg/m<sup>2</sup>. Persons defined as employed were either employed for wages or self-employed, regardless of the number of hours spent on the job. The 50 states and DC were grouped into the four geographic regions defined by the U.S. Bureau of the Census (1). Sample estimates were weighted by sex, age, and race to reflect the state's noninstitutionalized civilian population. To account for the complex sampling design, SUDAAN was used for data analysis (4).

Of the 1820 AI/AN BRFSS participants, 46.3% were women; 63.3% were aged 18–44 years, 25.6% were 45–64 years, and 11.1% were  $\geq 65$  years (mean: 42.4 years; standard deviation=16.2); 15.9% were college graduates; 60.2% were employed; and 49.8% ranked their health status as excellent or very good. The largest percentage of AI/AN participants in the BRFSS lived in the West (47.4%), followed by the South (25.9%),

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the Midwest (17.4%) and the Northeast (9.3%).\*

Approximately 22% of participants reported being told by a health professional that they had hypertension (women=23.0%, men=21.0%). Thirty-one percent reported they were current smokers (men=32.8%; women=28.8%). Approximately 16% were told by a health professional that they had high cholesterol, and 7% were told they had diabetes. Awareness of high cholesterol and diabetes was higher among women (17.6% and 9.1%, respectively) than men (13.8% and 5.5%, respectively). Nearly one fourth (23.6%) of men and nearly one fifth (19.1%) of women were categorized as obese (21.5% of all AI/AN).

Among AI/AN men, 36.3% reported having none of the selected CVD risk factors, 41.4% reported having one risk factor, and 22.3% reported having  $\geq 2$  risk factors (Table 1). Among AI/AN women, 38.6% reported having no CVD risk factors, 37.7% reported having one risk factor, and 23.7% reported having  $\geq 2$  risk factors.

The prevalence of having one or more CVD risk factors increased with increasing age (Table 1). The prevalence of having  $\geq 2$  risk factors was highest among respondents aged  $\geq 65$  years. The prevalence of having  $\geq 2$  CVD risk factors varied inversely with level of education (Table 1). Approximately 25% of AI/AN men with less than a high school education reported having  $\geq 2$  CVD risk factors, compared with approximately 15% of AI/AN men who were college graduates. AI/AN women with less than a high school education were almost three times more likely to report having  $\geq 2$  risk factors than were AI/AN women who had graduated from college. The percentage of having  $\geq 2$  risk factors was almost three times higher among unemployed women than employed women.

Half of the respondents who reported their health status as fair or poor reported having  $\geq 2$  CVD risk factors (women=51.8%; men=50.0%) compared with approximately one eighth of respondents who reported their health status as excellent or very good (women=13.3%; men=13.2%) (Table 1).

The number of reported CVD risk factors varied by geographic region (Table 1). For men, the prevalence of having  $\geq 2$  risk factors was highest in the Midwest (26.1%) and lowest in the Northeast (13.8%). Less geographic variation was observed among women. The prevalence of having  $\geq 2$  risk factors was highest in the Northeast (28.0%) and lowest in the West (20.0%).

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\**Northeast*=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and *West*=Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Cardiovascular Disease Risk Factors — Continued

**TABLE 1. Weighted percentage of self-reported CVD risk factors\* among American Indians/Alaska Natives, by sex and selected characteristics — Behavioral Risk Factor Surveillance System, United States, 1997**

Characteristic	Risk factors among men						Risk factors among women							
	0			1			0			1				
	No.†	%	95% CI‡	%	95% CI	%	95% CI	No.	%	95% CI	%	95% CI		
<b>Age (yrs)</b>														
18–44	484	42.4	± 7.9	42.2	± 7.7	15.4	± 4.9	613	49.5	± 7.7	34.8	± 7.4	15.7	± 4.7
45–64	232	27.8	± 11.2	40.9	± 12.0	31.3	± 11.2	267	23.3	± 9.2	41.4	± 13.0	35.2	± 12.3
≥65	82	14.8	± 9.6	37.9	± 17.1	47.2	± 18.1	132	18.1	± 9.5	44.4	± 15.8	37.5	± 13.8
<b>Education</b>														
<High school	175	40.8	± 15.4	33.7	± 14.5	25.6	± 11.9	227	20.3	± 10.2	41.0	± 13.7	38.7	± 12.7
High school	295	32.1	± 10.5	42.5	± 10.3	25.4	± 8.8	318	40.7	± 9.6	34.6	± 9.3	24.7	± 8.0
Some college/														
Tech school	210	29.9	± 10.3	49.8	± 11.1	20.3	± 8.7	331	40.9	± 11.5	43.9	± 11.9	15.3	± 6.5
College graduate	119	48.5	± 13.8	36.7	± 13.9	14.8	± 8.3	137	58.6	± 15.2	28.0	± 14.4	13.5	± 8.4
<b>Employment status</b>														
Employed	515	39.7	± 7.5	39.4	± 7.3	20.9	± 6.0	555	46.8	± 8.5	40.6	± 8.7	12.6	± 4.3
Unemployed	285	28.9	± 10.9	45.7	± 11.0	25.4	± 8.4	458	30.5	± 7.9	35.1	± 8.4	34.4	± 8.0
<b>Health status</b>														
Excellent/Very good	390	40.6	± 8.2	46.2	± 8.4	13.2	± 5.0	454	53.9	± 8.5	32.8	± 7.8	13.3	± 5.1
Good	251	34.6	± 11.7	46.5	± 11.8	18.9	± 9.1	342	34.6	± 10.3	47.0	± 11.9	18.4	± 6.6
Fair/Poor	158	27.4	± 16.1	22.6	± 10.3	50.0	± 14.8	219	13.4	± 7.7	34.8	± 12.0	51.8	± 12.4
<b>Region†</b>														
Northeast	53	58.3	± 18.6	28.0	± 17.3	13.8	± 9.9	77	46.0	± 14.9	26.0	± 12.0	28.0	± 14.3
Midwest	165	28.3	± 11.6	45.6	± 11.5	26.1	± 9.1	198	30.3	± 9.8	43.2	± 10.5	26.4	± 8.8
South	150	35.5	± 9.8	42.1	± 10.3	22.4	± 8.5	193	34.8	± 8.6	38.5	± 10.2	26.6	± 9.3
West	433	36.3	± 10.3	41.5	± 10.1	22.3	± 8.2	551	41.8	± 10.4	38.2	± 10.6	20.0	± 7.3
<b>Total</b>	<b>801</b>	<b>36.3</b>	<b>± 6.2</b>	<b>41.4</b>	<b>± 6.1</b>	<b>22.3</b>	<b>± 4.9</b>	<b>1019</b>	<b>38.6</b>	<b>± 5.8</b>	<b>37.7</b>	<b>± 6.1</b>	<b>23.7</b>	<b>± 4.8</b>

\* Risk factors include hypertension, current cigarette smoking, high blood cholesterol, obesity, and diabetes.  
 † Unweighted sample size and numbers may not add to total because of missing data.  
 ‡ Confidence interval.  
 † North=New England, Middle=Midwest, South=South, West=West

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 † North=New England, Middle=Midwest, South=South, West=West

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**Editorial Note:** The findings in this report document the prevalence of selected CVD risk factors among AI/AN by sociodemographic characteristics and are consistent with previous findings that CVD risk factors and death rates are not uniformly distributed across regions among AI/AN (2,5). Higher CVD death rates have been reported among AI/AN residing in the Midwest (2); data from this study indicate that AI/AN men residing in the Midwest were most likely to report having  $\geq 2$  CVD risk factors. Geographic variation in risk factors and death rates may reflect differences in cultural backgrounds, historical circumstances, and socioeconomic conditions. Prevalence estimates probably are influenced by sociodemographic factors (i.e., age distribution, educational attainment, employment status, and poverty), lifestyle (i.e., physical inactivity), aspects of the social environment (i.e., educational and economic opportunities), and factors affecting the health-care system (i.e., access to health care, cost, and availability of screening for diseases and risk factors). Higher prevalences of multiple CVD risk factors among AI/AN participants who were either unemployed or had completed less than a high school education corroborate the well-documented influence of low socioeconomic status on CVD risk factors.

The findings in this report are subject to at least five limitations. First, estimates of CVD risk factors are based on self-reported data and are subject to the biases associated with self-reported data. Second, these results probably underestimate the prevalence of CVD risk factors because the data are dependent on the respondent being aware of his risk factor profile. Third, data on physical inactivity, a risk factor for CVD, was not collected in the 1997 BRFSS survey. If data on physical activity levels had been included, the prevalence of CVD risk factors among AI/AN probably would have been higher. Fourth, approximately 23% of AI/AN households do not have a telephone (6); these findings could underestimate the prevalence of CVD risk factors among AI/AN because persons without telephones are more likely to be of lower socioeconomic status and to have higher risk for disease (7). Finally, BRFSS does not collect information on reservation residency or tribal affiliation. Aggregating the AI/AN participants into relatively large geographic regions may mask important differences among the tribes.

The percentages of AI/AN with multiple CVD risk factors highlight the importance of enhancing primary prevention activities among communities of AI/AN. Through CDC's Racial and Ethnic Approaches to Community Health (REACH 2010) Project (8), two AI/AN communities are developing effective and sustainable programs designed to eliminate racial/ethnic disparities in CVD and diabetes. Another activity is the Inter-Tribal Heart Project, a collaboration between CDC, the Indian Health Service, and three tribal communities to determine the prevalence of risk factors for heart disease and to implement community-based heart disease prevention programs (9). Reducing the prevalence of CVD risk factors among AI/AN requires an understanding of the diversity of cultural values and practices among AI/AN, and historical circumstances that contributed to the current socioeconomic conditions. Therefore, tribal-specific assessments of CVD risk factor profiles and CVD morbidity and mortality profiles are needed to develop culturally relevant CVD prevention programs and policies that support heart-healthy living and working conditions for AI/AN.

*Cardiovascular Disease Risk Factors — Continued**References*

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### **HIV/AIDS Among Men Who Have Sex With Men and Inject Drugs — United States, 1985-1998**

Men who have sex with men and inject drugs (MSM/IDU) pose unique challenges for human immunodeficiency virus (HIV) risk reduction efforts because they have multiple risks for HIV acquisition and transmission. This report presents 1) the demographic characteristics of MSM/IDU diagnosed with acquired immunodeficiency syndrome (AIDS) in 1998 and MSM/IDU living with AIDS as of December 31, 1998; 2) trends in AIDS incidence among MSM/IDU from 1985 to 1998; and 3) information on selected behaviors from interviews of MSM/IDU who had AIDS diagnosed from 1996 to 1998 in 12 states.\* The findings indicate that 1) over half of MSM/IDU with AIDS were non-Hispanic blacks and Hispanics, and most MSM/IDU with AIDS were reported from large metropolitan statistical areas (MSAs); 2) AIDS incidence has declined since 1996; and 3) a high prevalence of drug-related and sexual risk behaviors occurred among MSM/IDU with AIDS.

Demographic and risk characteristics of MSM/IDU aged  $\geq 13$  years with AIDS reported to CDC were obtained from AIDS surveillance data in the 50 states, the District of Columbia, and all U.S. territories. Risk information for AIDS surveillance generally was obtained from medical records. For this analysis, only persons with the reported dual risk factors for HIV transmission of male-male sex and injecting-drug use were included. AIDS diagnoses were adjusted for reporting delays on the basis of cases reported to CDC through December 1999, and for the anticipated reclassification of cases initially reported without risk (1,2).

\*Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Michigan, New Jersey, New Mexico, South Carolina, and Washington.

*HIV/AIDS — Continued*

Information on selected behavioral characteristics of MSM/IDU with AIDS was obtained from the Supplement to HIV/AIDS Surveillance (SHAS) project (3). SHAS is a cross-sectional interview study aimed at extending information routinely collected in AIDS surveillance. Persons aged  $\geq 18$  years recently reported with HIV/AIDS to the 12 health departments participating in SHAS were interviewed about their sexual and drug-related risk behaviors. Interview data are presented for men who were classified as MSM/IDU on the HIV/AIDS case report or who reported male-male sex and injecting-drug use in the SHAS interview.

### Trends Among MSM/IDU

The proportion of all AIDS cases among MSM/IDU decreased from 8% in 1990 to 5% in 1998; 2161 MSM/IDU had AIDS diagnosed in 1998, and 18,133 MSM/IDU were living with AIDS as of December 1998 (Table 1). Most were diagnosed in large MSAs ( $\geq 1,000,000$  persons) and in the South and West.<sup>†</sup> Non-Hispanic blacks and Hispanics accounted for more than half of each group.

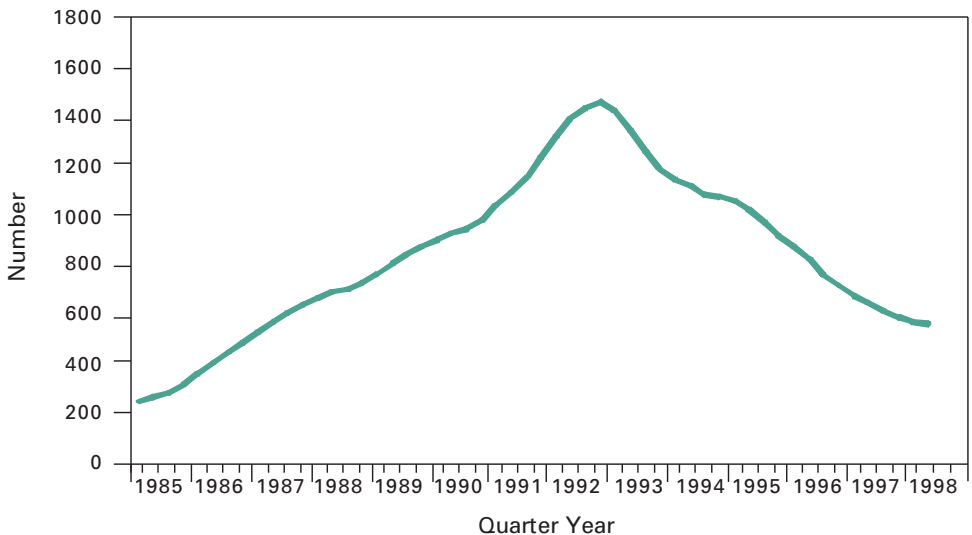
AIDS incidence among MSM/IDU increased steadily from 1985 to 1992, and peaked during 1992–1993 (Figure 1), corresponding with the 1993 expansion of the AIDS surveillance case definition. AIDS incidence declined 37% from 1996 to 1998.

### Interviews of MSM/IDU

A total of 513 MSM/IDU who had AIDS diagnosed during 1996–1998 were interviewed for the SHAS project. Of these, 435 (85%) were aged 30–49 years. Non-Hispanic blacks, non-Hispanic whites, and Hispanics accounted for 36%, 42%, and 17%,

<sup>†</sup>South=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West=Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

**FIGURE 1. Estimated incidence\* of AIDS among men who have sex with men and inject drugs, by quarter year — United States, 1985–1998**



\*Adjusted for reporting delays and unreported risk.

HIV/AIDS — Continued

**TABLE 1. Estimated number and percentage of AIDS cases diagnosed in 1998\* among men who have sex with men and inject drugs (MSM/IDU) and number of MSM/IDU living with AIDS\* as of December 31, 1998, by selected characteristics — United States**

Characteristic	MSM/IDU with AIDS diagnosed		MSM/IDU living with AIDS	
	No.	(%) <sup>†</sup>	No.	(%)
<b>Age group (yrs)<sup>§</sup></b>				
13–19	5	( 0.2)	8	( 0.0)
20–29	258	( 11.9)	1,011	( 5.6)
30–39	1,009	( 46.7)	8,221	( 45.3)
40–49	695	( 32.1)	7,018	( 38.7)
50–59	161	( 7.5)	1,604	( 8.8)
≥60	35	( 1.6)	271	( 1.5)
<b>Race/Ethnicity</b>				
White, non-Hispanic	882	( 40.8)	8,803	( 48.5)
Black, non-Hispanic	891	( 41.2)	6,288	( 34.7)
Hispanic	350	( 16.2)	2,804	( 15.5)
Asian/Pacific Islander	15	( 0.7)	84	( 0.5)
American Indian/Alaska Native	21	( 0.9)	138	( 0.8)
<b>Region<sup>¶</sup></b>				
Northeast	359	( 16.6)	3,047	( 16.8)
Midwest	221	( 10.2)	1,986	( 11.0)
South	956	( 44.2)	7,133	( 39.3)
West	557	( 25.8)	5,378	( 29.7)
U.S. territory	68	( 3.1)	589	( 3.2)
<b>Metropolitan statistical area (MSA)</b>				
≥1,000,000	1,466	( 67.8)	12,790	( 70.5)
500,000–999,999	188	( 8.7)	1,328	( 7.3)
50,000–499,999	256	( 11.9)	2,309	( 12.7)
<50,000	201	( 9.3)	1,436	( 7.9)
Non-MSA/Unknown	50	( 2.3)	269	( 1.5)
<b>Total</b>	<b>2,161</b>	<b>(100.0)</b>	<b>18,133</b>	<b>(100.0)</b>

\* Adjusted for reporting delays and risk redistribution.

<sup>†</sup> Percentages may not add to 100% because of rounding.<sup>§</sup> Age at time of diagnosis for persons with AIDS. Age as of December 31, 1998, for persons living with AIDS.<sup>¶</sup> *Northeast*=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West*=Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming; and *U.S. territory*=Guam, Pacific Islands, Puerto Rico, and Virgin Islands.

respectively; Asians/Pacific Islanders and American Indians/Alaska Natives accounted for <2%. The South and the West accounted for 42% and 51% of respondents, respectively, reflecting the geographic distribution of SHAS sites.

MSM/IDU interviewed in SHAS had high rates of high-risk sexual and drug-related risk behaviors (Table 2). Eighty-two percent of MSM/IDU had ever used noninjecting drugs, and 61% of MSM/IDU had ever used crack cocaine. Of those injecting drugs

HIV/AIDS — Continued

**TABLE 2. Prevalence of sex and drug-use behaviors among men who have sex with men and inject drugs who had AIDS diagnosed, Supplement to HIV/AIDS Surveillance project — selected states\*, January 1996–December 1998†**

Characteristic	No.	(%)
Had used noninjecting drugs during previous 5 years	422	(82.3)
Had ever used crack	311	(60.6)
Had used crack during previous year	153	(29.8)
Had injected drugs during previous 5 years	174	(34.1)
<i>Of those who injected during previous 5 years, shared needles</i>	79	(45.1)
Drug treatment during previous 5 years	209	(40.7)
Had sex with a man during previous 5 years	390	(76.0)
Had receptive anal intercourse (RAI) with men during previous year	185	(36.1)
<i>Always used condom with RAI in previous year</i>	83	(44.9)
Had insertive anal intercourse (IAI) with men during previous year	48	(9.4)
<i>Always used condom with IAI during previous year</i>	25	(52.1)
Had sex with a woman during previous 5 years	219	(42.7)
Had vaginal intercourse (VI) during previous year	127	(24.8)
<i>Always used condom with VI during previous year</i>	67	(52.8)
Received money for sex during previous 5 years	94	(18.3)
<i>Always used condom with exchange during previous 5 years</i>	44	(46.8)
Received drugs for sex during previous 5 years	101	(19.7)
<i>Always used condom with exchange during previous 5 years</i>	27	(26.7)

\*Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Michigan, New Jersey, New Mexico, South Carolina, and Washington.

† n=513.

during the 5 years preceding the interview, 45% had shared needles. Seventy-six percent of MSM/IDU had sex with men during the 5 years preceding the interview, and 43% had sex with women. Nearly half of those who had sex during the year preceding the interview did not always use condoms. However, consistent condom use was higher when the steady sex partner was known to be uninfected: 61% who had vaginal intercourse, 57% who had insertive anal intercourse with a man, and 61% who had receptive anal intercourse with a man during the year preceding the interview said that they had always used condoms. During the 5 years preceding interview, 18%–20% of MSM/IDU exchanged sex for money or drugs.

To assess the degree to which multiple risks are captured in AIDS surveillance, risk classification of the MSM/IDU interviewed in SHAS was examined in AIDS surveillance. Of the 513 MSM/IDU, 352 (69%) were classified as MSM/IDU in AIDS surveillance, 106 (21%) were classified as MSM, 50 (10%) were classified as IDU, and two (0.4%) were classified as having had heterosexual contact or contact with an adult with hemophilia.

Reported by: State and territorial health departments; Div of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention; and an EIS Officer, CDC.

**Editorial Note:** The findings in this report document continued declines in AIDS incidence among MSM/IDU since 1996, which resulted in large part from increased use of antiretroviral therapies that delay disease progression (4) and also reflect earlier decreases in HIV incidence among MSM/IDU. The supplemental interview information in a sample of MSM/IDU with AIDS indicates a high prevalence of drug-related and sexual risk behaviors, including sex with men and women. Previous studies have reported similar findings (5,6).



*HIV/AIDS — Continued*

Differences in the racial/ethnic, age, and regional distribution of incident and prevalent AIDS cases reflect some differences in historical patterns of HIV incidence. Those include the later onset of the HIV epidemic in the South compared with the West and the Northeast, and the increasing impact on racial/ethnic minorities (7,8). In addition, differences in AIDS incidence and prevalence may reflect differential access to or use of effective antiretroviral treatments. Integrated surveillance for HIV infection and AIDS characterizes persons more recently infected with HIV (9).

Non-Hispanic black and Hispanic men were overrepresented among MSM/IDU, accounting for half of MSM/IDU living with AIDS but 22% of the general male population. Race/ethnicity is not a risk factor for HIV infection; social and economic factors associated with race/ethnicity, such as high poverty rates and unemployment and lack of access to health care, are associated with high rates of risk behavior (10).

Behavioral risk information for HIV is important to assure that state/local prevention programs are directed to appropriate populations. If providers do not elicit this information or are reluctant to question patients about their sexual and drug-using behaviors, then information in medical records may underrepresent true risks for HIV in the population. Data from the SHAS interviews show that the AIDS surveillance system may have underestimated the number of MSM/IDU and that the true proportion of AIDS cases attributable to MSM/IDU in 1998 may be 7%.

Because MSM/IDU have multiple risks for HIV infection, they are particularly vulnerable to infection and can transmit HIV across multiple populations, including MSM, IDU, and heterosexual women. Prevention strategies must provide the information, skills, and support necessary to reduce both sexual and drug-related risk behaviors among MSM/IDU, and include access to drug treatment and to prevention case management. Additional research is needed to determine whether risk reduction strategies that have been effective for groups with single risks also are effective for groups with multiple risks. HIV/AIDS disease surveillance supplemented with behavioral surveys will help in planning prevention, treatment, and other services needed to reduce transmission and to improve survival and quality of life for infected persons.

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*HIV/AIDS — Continued*

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### **Heat-Related Illnesses, Deaths, and Risk Factors — Cincinnati and Dayton, Ohio, 1999, and United States, 1979–1997**

During the summer of 1999, a heat wave\* occurred in the midwestern and eastern United States. This period of hot and humid weather persisted from July 12 through August 1, 1999, and caused or contributed to 22 deaths among persons residing in Cincinnati (18 deaths) and Dayton (four deaths). A CDC survey of 24 U.S. metropolitan areas indicated that Ohio recorded some of the highest rates for heat-related deaths during the 1999 heat wave, with Cincinnati reporting 21 per million and Dayton reporting seven per million (CDC, unpublished data, 1999). This report describes four heat-related deaths representative of those that occurred in Cincinnati or Dayton during the 1999 heat wave, summarizes heat-related deaths in the United States during 1979–1997, describes risk factors associated with heat-related illness and death, and recommends preventive measures.

#### **Case Reports**

**Case 1.** In July 1999, a 34-year-old woman with schizophrenia was found dead in a group home in Cincinnati at 9 a.m. A caretaker discovered the decedent lying on the couch of a second-floor living room; two windows were open and fans were blowing. The decedent was last seen alive around noon the previous day. She had a medical history of hypertensive heart disease, asthma, and swelling of the ankles for which she had been taking a diuretic, furosemide. The temperature inside the home at the time of her death was unknown; however, the ambient temperature was 92.1 F (33.4 C) when the decedent was found. Her liver core temperature was 106.2 F (41.2 C). The Hamilton County Coroner's Office attributed the death to heatstroke.

**Case 2.** In July 1999, an 84-year-old man was found dead in his Dayton residence. He lived alone and was found lying in bed, supine and nude. The doors to his home were locked and all the windows were shut. When the body was discovered, the temperature inside the home was approximately 86 F (30 C). A fan was blowing air toward the ceiling, an air conditioner was present but not running, and the thermostat was set in the heat mode. The temperature in Dayton that day reached >90 F (>32 C) with high humidity. An autopsy report indicated the decedent suffered from arteriosclerosis and hypertensive cardiovascular disease. The Montgomery County Coroner's Office attributed the death to exposure to excessive environmental heat.

**Case 3.** In July 1999, a 65-year-old man was found in his residence by a neighbor, unresponsive and having seizures. Following transport to the emergency department of a local hospital by the Cincinnati Fire Division, the patient had a rectal temperature of

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\*Three or more consecutive days of air temperatures  $\geq 90$  F ( $\geq 32.2$  C).

*Heat-Related Illnesses — Continued*

108 F (42.2 C) and subsequently died. The decedent had a history of chronic alcoholism and hypertensive cardiovascular disease. He lived alone in an attic apartment without air conditioning. The Hamilton County Coroner's Office attributed the death to hypoxic encephalopathy following resuscitation for heatstroke.

**Case 4.** In August 1999, a 24-year-old man was found lying face down on the living room floor of his Dayton apartment in an early stage of decomposition. The room temperature was 99 F (37.2 C), and the apartment had no air conditioning. The decedent lived alone and was last seen alive 3 days earlier at his home by a neighbor. The decedent had a history of mental illness and depression and had been taking bengtropine. The Montgomery County Coroner's report listed the probable cause of death as cardiac arrhythmia caused by hyperthermia resulting from exposure to high environmental temperature.

**United States**

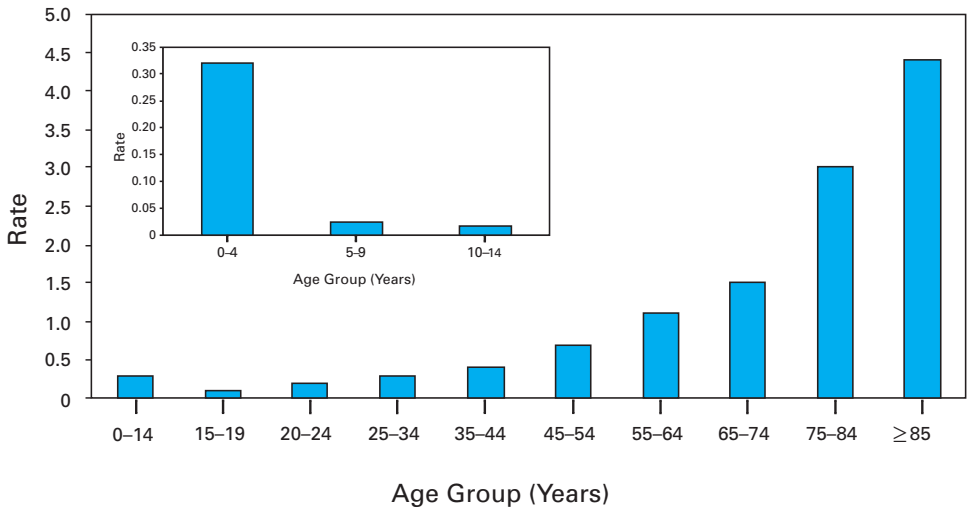
During 1979–1997, the most recent years for which data are available, an annual average of 371 deaths in the United States (1) were attributable to “excessive heat exposure”<sup>†</sup> (median: 249; range: 148 in 1979 to 1700 in 1980) (5). This translates into a mean annual death rate of 1.5 per million and a median annual death rate of one per million. Because of a record heat wave, the heat-related death rate for 1980 was more than three times higher than that for any other year during the 19-year period. The median annual death rate for hyperthermia in persons aged  $\geq 65$  years was three per million. During 1979–1997, 7046 deaths were attributable to excessive heat exposure: 3010 (43%) were “due to weather conditions,” 351 (5%) to heat “of manmade origin,” and 3683 (52%) “of unspecified origin.” Of the 2954 persons whose deaths were caused by weather conditions and for whom age data were available, persons aged  $\geq 65$  years accounted for 1783 (44%) deaths, and persons aged  $\leq 14$  years accounted for 127 (4%) deaths. Except children aged  $\leq 14$  years, the average annual rate of heat-related deaths increased with each age group, particularly for persons aged  $\geq 65$  years (Figure 1). During 1979–1997, among persons of all ages, the annual death rate “due to weather conditions” was two times higher for men (0.8 per million) than for women (0.4 per million), and more than three times higher for blacks (1.6 per million) than for whites (0.5 per million). Arizona and Missouri (four per million) and Arkansas and Kansas (three per million) had the highest annual age-adjusted rates for heat-related deaths “due to weather conditions” (1).

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<sup>†</sup>The National Association of Medical Examiners' (NAME) definition for heat-related death includes exposure to high ambient temperature either causing the death or as substantially contributing to it, cases where the body temperature at time of collapse was  $\geq 105$  F ( $\geq 40.6$  C), and a history of exposure to high ambient temperature and the reasonable exclusion of other causes of hyperthermia (1). Because death rates from other causes (e.g., cardiovascular and respiratory disease) increase during heat waves (2–4) (defined by the National Weather Service as  $\geq 3$  consecutive days of temperature  $> 90$  F [ $\geq 32.2$  C]), deaths classified as caused by hyperthermia represent only a portion of heat-related death.

## Heat-Related Illnesses — Continued

**FIGURE 1. Average annual rate\* of heat-related deaths†, as the result of weather conditions, by age group — United States, 1979–1997**

\*Per 1 million population.

† Underlying cause of death attributed to excess heat exposure classified according to the *International Classification of Diseases, Ninth Revision (ICD-9)*, as code E900.0 "due to weather conditions (deaths)."

**Editorial Note:** Behavioral and environmental precautions are essential to preventing illness and death<sup>5</sup> associated with heat waves or sustained periods of hot weather (daytime heat index<sup>¶</sup> of  $\geq 105$  F [ $\geq 40.6$  C] and a nighttime minimum temperature of 80 F [26.7 C] persisting for at least 48 hours) (6).

Illnesses associated with high environmental temperatures include heatstroke (hyperthermia), heat exhaustion, heat syncope, and heat cramps (2). Heatstroke is a medical emergency characterized by the rapid onset and increase (within minutes) of the core body temperature to  $\geq 105$  F ( $\geq 40.6$  C), lethargy, disorientation, delirium, and coma (2). Heatstroke is often fatal despite rapidly lowering the body temperature (e.g., ice baths), because frequently irreparable neurologic damage has occurred (2). Heat exhaustion is characterized by dizziness, weakness, or fatigue often following several days of sustained exposure to hot temperatures, and results from dehydration or electrolyte imbalance (2); treatment includes replacing fluids and electrolytes and may require hospitalization (2). Physical exertion during hot weather increases the likelihood of heat syncope and heat cramps caused by peripheral vasodilation (2). Persons who lose consciousness because of heat syncope should be placed in a recumbent position

<sup>5</sup> Underlying cause of death attributed to "excessive heat exposure," classified according to the *International Classification of Diseases, Ninth Revision (ICD-9)*, code E900.0, "due to weather conditions" (deaths); code E900.1, "of manmade origin" (deaths); or code E900.9, "of unspecified origin" (deaths). Data were obtained from the Compressed Mortality File of CDC's National Center for Health Statistics, which contains information from death certificates filed in 50 states and the District of Columbia. All rates were age-standardized to the 1990 U.S. population.

<sup>¶</sup> Heat index is a measure of the effect of combined elements (e.g., heat and humidity) on the body.

*Heat-Related Illnesses — Continued*

with feet elevated and given fluid and electrolyte replacement (2). For heat cramps, physical exertion should be discontinued and fluids and electrolytes replaced (2,7).

All persons are at risk for hyperthermia when exposed to a sustained period of excessive heat (2); however, factors that increase the risk for hyperthermia and heat-related death include age (e.g., the elderly), chronic health conditions (e.g., cardiovascular disease or respiratory diseases), mental illness (e.g., schizophrenia), social circumstances (e.g., living alone), and other conditions that might interfere with the ability to care for oneself (2,3). Other risk factors are alcohol consumption, which may cause dehydration, previous heatstroke, physical exertion in exceptionally hot environments, the use of medications that interfere with the body's heat regulatory system, such as neuroleptics (e.g., antipsychotics and major tranquilizers), and medications with anticholinergic effects (e.g., tricyclic antidepressants, antihistamines, some antiparkinsonian agents, and some over-the-counter sleep medication [2–4]). Persons working in hot indoor or outdoor environments should take 10–14 days to acclimate to high temperatures. Although adequate salt intake is important, salt tablets are not recommended and can be hazardous to some persons (2). Although the use of fans may increase comfort at temperatures <90 F (<32.2 C), fans are not protective against heatstroke when temperatures reach ≥90 F (≥32.2 C) and humidity exceeds 35% (2,4).

Measures for preventing heat-related illness and death during a heat wave include spending time in air conditioned environments, increasing nonalcoholic fluid intake, exercising only during cooler parts of the day, and taking cool baths (2). Elderly persons should be encouraged to take advantage of air conditioned environments (e.g., shopping malls, senior centers, and public libraries), even for part of the day (2–4). Public health information about exceptionally high temperatures should be directed toward persons aged ≥65 years and <5 years. Parents should be educated about the heat sensitivity of children aged <5 years (2), and should never leave them unattended, especially in motor vehicles. When a heat wave is predicted, friends, relatives, neighbors, and caretakers should check frequently on elderly, disabled, mentally ill, chronically ill, and home-bound persons, and during periods of high temperatures, prevention messages should be disseminated to the public as early and often as possible.

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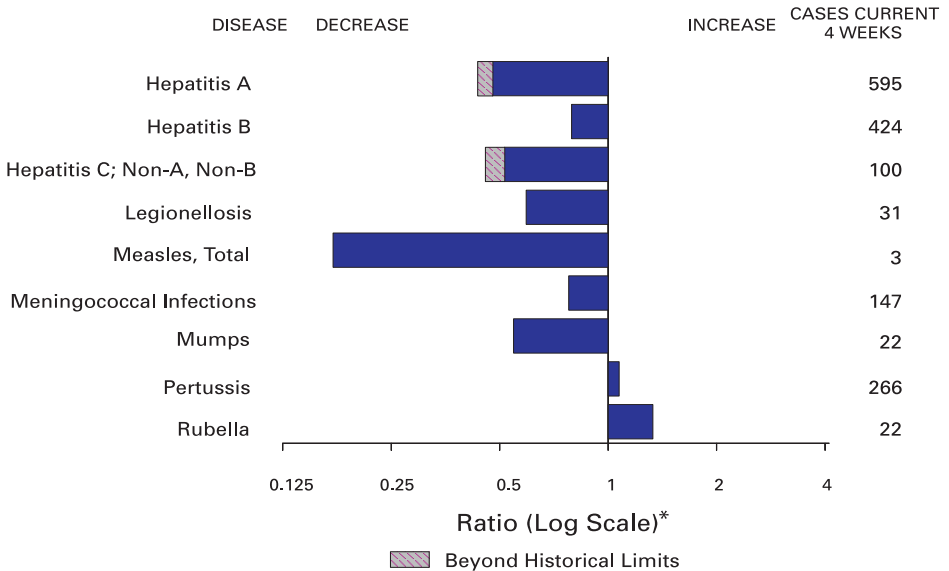
**Erratum: Vol. 48, No. 22**

In the article, "Heat-Related Illnesses and Death — Missouri, 1998, and United States 1979–1996," on page 471, the legend below Figure 1 should read: "Underlying cause of death attributed to excessive heat exposure classified according to the *International Classification of Diseases, Ninth Revision*, as code E900.0, "due to weather conditions," code E900.1, "of manmade origin," or code E900.9, "of unspecified origin."

**Erratum: Vol 49, No. 19**

In the article "Cause-Specific Adult Mortality: Evidence From Community-Based Surveillance—Selected Sites, Tanzania, 1992–1998," on page 416, the district location of Dar es Salaam was misidentified. The first sentence of the second paragraph should read: The AMMP surveillance project was conducted in a low-income and in a middle-income section of the city of Dar es Salaam, in part of a region ranked by the Tanzanian government as being among the 50% most deprived in Tanzania (i.e., Morogoro Rural District in Morogoro Region), and in part of a region ranked as one of the 15% least deprived (i.e., Hai District in Kilimanjaro Region) (1).

**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending May 27, 2000, with historical data**



\*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 of provisional cases of selected notifiable diseases, United States, cumulative, week ending May 27, 2000 (21st Week)**

	Cum. 2000		Cum. 2000
Anthrax	-	HIV infection, pediatric <sup>§</sup>	85
Brucellosis*	15	Plague	2
Cholera	-	Poliomyelitis, paralytic	-
Congenital rubella syndrome	4	Psittacosis*	6
Cyclosporiasis*	5	Rabies, human	-
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	57
Encephalitis: California serogroup viral*	2	Streptococcal disease, invasive, group A	1,245
eastern equine*	-	Streptococcal toxic-shock syndrome*	45
St. Louis*	-	Syphilis, congenital <sup>¶</sup>	38
western equine*	-	Tetanus	9
Ehrlichiosis human granulocytic (HGE)*	28	Toxic-shock syndrome	56
human monocytic (HME)*	6	Trichinosis	4
Hansen disease (leprosy)*	14	Typhoid fever	104
Hantavirus pulmonary syndrome* <sup>†</sup>	4	Yellow fever	-
Hemolytic uremic syndrome, postdiarrheal*	31		

-: No reported cases.

\*Not notifiable in all states.

<sup>†</sup> Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).

<sup>§</sup> Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP). Last update April 30, 2000.

<sup>¶</sup> Updated from reports to the Division of STD Prevention, NCHSTP.

**TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	AIDS		Chlamydia <sup>†</sup>		Cryptosporidiosis		<i>Escherichia coli</i> O157:H7*			
	Cum. 2000 <sup>‡</sup>	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	NETSS		PHLIS	
							Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	13,355	18,500	211,016	274,013	438	653	627	510	376	453
NEW ENGLAND	802	940	8,511	8,539	25	33	74	79	58	76
Maine	14	22	516	362	5	4	5	4	4	-
N.H.	11	25	413	431	2	5	5	9	4	10
Vt.	2	6	216	202	10	6	2	8	2	1
Mass.	535	614	4,093	3,607	6	15	32	36	26	35
R.I.	34	61	952	953	2	-	3	4	-	6
Conn.	206	212	2,321	2,984	-	3	27	19	22	24
MID. ATLANTIC	3,280	4,449	12,606	31,478	42	149	79	33	56	29
Upstate N.Y.	186	529	N	N	31	44	74	25	40	3
N.Y. City	1,943	2,109	2,188	15,182	6	86	4	2	-	-
N.J.	703	957	2,355	5,089	1	11	1	6	8	26
Pa.	448	854	8,063	11,207	4	8	N	N	8	-
E.N. CENTRAL	1,310	1,280	36,587	47,779	90	116	112	92	38	74
Ohio	194	211	8,300	12,511	20	16	24	33	12	23
Ind.	100	167	4,425	4,719	8	8	19	14	9	12
Ill.	809	590	10,612	17,125	7	18	31	26	-	19
Mich.	153	248	9,621	9,235	15	17	21	19	11	14
Wis.	54	64	3,629	4,189	40	57	17	N	6	6
W.N. CENTRAL	299	389	13,240	15,505	41	36	118	88	68	90
Minn.	55	69	2,441	3,123	10	13	34	22	30	25
Iowa	26	46	1,786	1,726	11	7	18	9	7	4
Mo.	139	155	4,949	5,619	8	4	39	9	17	11
N. Dak.	-	4	61	361	2	4	6	3	4	2
S. Dak.	3	11	664	667	3	2	2	3	2	6
Nebr.	20	32	1,197	1,460	5	5	11	36	5	42
Kans.	56	72	2,142	2,549	2	1	8	7	3	-
S. ATLANTIC	3,641	5,168	35,551	57,270	80	120	43	58	28	39
Del.	65	72	1,143	1,157	2	-	-	3	-	-
Md.	392	561	4,756	5,373	6	6	8	4	1	U
D.C.	264	207	1,375	N	2	4	-	-	U	U
Va.	278	263	6,133	5,916	4	7	12	17	10	13
W. Va.	21	25	753	741	3	-	2	1	2	1
N.C.	195	358	8,302	9,318	8	1	9	11	3	11
S.C.	294	482	3,694	8,002	-	-	3	7	2	5
Ga.	357	827	8,482	14,603	53	72	5	3	5	U
Fla.	1,775	2,373	913	12,160	2	30	4	12	5	9
E.S. CENTRAL	639	840	19,624	17,921	19	7	32	35	21	29
Ky.	80	128	3,216	3,194	1	1	11	9	8	7
Tenn.	287	337	5,785	5,803	4	4	14	12	11	12
Ala.	169	212	6,399	3,893	8	1	1	9	-	9
Miss.	103	163	4,224	5,031	6	1	6	5	2	1
W.S. CENTRAL	1,128	2,077	37,279	36,276	12	48	23	26	42	31
Ark.	69	70	1,978	2,299	1	-	4	5	3	4
La.	232	409	7,648	6,245	-	20	-	3	13	5
Okla.	65	55	3,297	3,296	2	1	7	6	3	5
Tex.	762	1,543	24,356	24,436	9	27	12	12	23	17
MOUNTAIN	477	717	12,422	14,081	34	30	57	40	23	29
Mont.	6	4	591	512	4	4	9	3	-	-
Idaho	9	11	765	689	3	2	8	1	-	3
Wyo.	2	3	316	312	2	-	3	3	2	4
Colo.	99	143	1,862	3,156	9	4	20	15	7	8
N. Mex.	50	37	1,687	1,985	2	11	2	2	2	1
Ariz.	165	352	5,166	5,300	3	7	13	7	11	4
Utah	52	70	1,028	822	9	N	1	7	1	4
Nev.	94	97	1,007	1,305	2	2	1	2	-	2
PACIFIC	1,779	2,640	35,196	45,164	95	114	89	59	42	56
Wash.	202	151	5,026	4,835	N	N	22	17	22	24
Oreg.	47	63	2,067	2,574	3	11	12	14	14	12
Calif.	1,476	2,378	26,413	35,693	92	103	50	27	-	19
Alaska	5	6	1,021	787	-	-	1	-	-	-
Hawaii	49	42	669	1,275	-	-	4	1	6	1
Guam	13	1	-	190	-	-	N	N	U	U
P.R.	284	627	142	U	-	-	2	10	U	U
V.I.	18	13	-	U	-	U	-	U	U	U
Amer. Samoa	-	-	-	U	-	U	-	U	U	U
C.N.M.I.	-	-	-	U	-	U	-	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.  
 \* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

<sup>†</sup> Chlamydia refers to genital infections caused by *C. trachomatis*. Totals reported to the Division of STD Prevention, NCHSTP.

<sup>‡</sup> Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update April 30, 2000.



**TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	Gonorrhea		Hepatitis C; Non-A, Non-B		Legionellosis		Lyme Disease	
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	109,554	147,108	1,020	1,527	245	339	1,346	2,160
NEW ENGLAND	2,300	2,613	23	8	17	22	234	496
Maine	32	22	-	1	2	3	-	1
N.H.	39	33	-	-	2	3	30	-
Vt.	25	25	3	2	-	3	1	-
Mass.	1,054	1,010	18	2	8	5	107	119
R.I.	249	240	2	3	2	2	-	16
Conn.	901	1,283	-	-	3	6	96	360
MID. ATLANTIC	8,460	16,889	23	56	50	93	840	1,182
Upstate N.Y.	2,427	2,492	23	26	21	25	401	409
N.Y. City	824	6,329	-	-	-	12	4	34
N.J.	1,286	2,954	-	-	2	7	-	234
Pa.	3,923	5,114	-	30	27	49	435	505
E.N. CENTRAL	22,645	30,792	94	877	67	101	16	100
Ohio	4,823	6,735	3	-	32	29	13	14
Ind.	2,020	2,594	1	-	13	11	2	4
Ill.	7,443	13,466	6	21	6	13	1	4
Mich.	6,838	6,352	84	307	11	28	-	1
Wis.	1,521	1,645	-	549	5	20	U	77
W.N. CENTRAL	5,685	6,469	267	65	20	16	50	47
Minn.	987	1,163	4	2	1	1	13	13
Iowa	375	376	1	-	3	5	1	3
Mo.	2,929	3,132	242	60	12	7	10	21
N. Dak.	4	36	-	-	-	-	-	1
S. Dak.	96	65	-	-	1	1	-	-
Nebr.	413	663	3	3	-	2	-	5
Kans.	881	1,034	17	-	3	-	26	4
S. ATLANTIC	26,186	42,489	26	85	41	37	166	237
Del.	636	685	-	-	4	3	20	14
Md.	3,273	4,895	5	23	16	4	109	173
D.C.	962	2,529	-	-	1	-	-	1
Va.	4,042	3,915	1	8	3	10	18	15
W. Va.	227	246	4	11	N	N	7	4
N.C.	6,877	7,986	12	20	6	7	8	28
S.C.	4,065	4,283	-	12	2	6	2	1
Ga.	5,341	9,414	1	1	4	-	-	-
Fla.	763	8,536	3	10	5	7	2	1
E.S. CENTRAL	13,986	13,869	170	106	7	16	4	30
Ky.	1,345	1,372	16	5	5	8	-	3
Tenn.	4,436	4,446	39	38	1	6	3	13
Ala.	4,876	3,715	6	1	1	2	1	6
Miss.	3,329	4,336	109	62	-	-	-	8
W.S. CENTRAL	19,415	20,626	266	186	4	1	1	6
Ark.	1,065	1,090	3	9	-	-	-	-
La.	5,405	5,314	168	124	2	1	1	3
Okla.	1,450	1,680	2	3	1	-	-	2
Tex.	11,495	12,542	93	50	1	-	-	1
MOUNTAIN	3,939	3,818	88	85	16	23	1	3
Mont.	20	17	1	4	-	-	-	-
Idaho	36	34	-	4	2	-	-	-
Wyo.	28	11	56	31	1	-	-	1
Colo.	1,268	874	12	11	7	4	1	-
N. Mex.	367	344	6	14	1	1	-	1
Ariz.	1,693	1,961	10	16	2	3	-	-
Utah	108	81	-	2	3	9	-	-
Nev.	419	496	3	3	-	6	-	1
PACIFIC	6,938	9,543	63	59	23	30	34	59
Wash.	877	862	8	7	9	7	1	1
Oreg.	263	369	15	7	N	N	2	3
Calif.	5,594	8,004	40	45	14	22	32	55
Alaska	121	136	-	-	-	1	-	-
Hawaii	83	172	-	-	-	-	N	N
Guam	-	27	-	-	-	-	-	-
P.R.	211	147	1	-	-	-	N	N
V.I.	-	U	-	U	-	U	-	U
Amer. Samoa	-	U	-	U	-	U	-	U
C.N.M.I.	-	U	-	U	-	U	-	U

N: Not notifiable.

U: Unavailable.

- : No reported cases.

**TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	NETSS		PHLIS	
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	339	452	1,947	2,328	9,299	10,856	6,664	9,669
NEW ENGLAND	15	16	259	360	615	614	598	646
Maine	2	1	60	63	51	40	31	28
N.H.	1	-	3	25	45	32	45	33
Vt.	2	1	21	55	45	23	48	25
Mass.	5	6	88	79	341	358	329	367
R.I.	3	-	6	44	25	32	36	48
Conn.	2	8	81	94	108	129	109	145
MID. ATLANTIC	56	128	372	427	1,264	1,473	1,374	1,212
Upstate N.Y.	19	29	261	286	343	314	378	362
N.Y. City	20	58	U	U	288	420	402	435
N.J.	7	27	60	85	324	354	215	342
Pa.	10	14	51	56	309	385	379	73
E. N. CENTRAL	34	52	17	25	1,457	1,628	821	1,437
Ohio	5	8	4	8	373	309	307	277
Ind.	2	7	-	-	166	137	145	132
Ill.	15	24	-	-	440	511	1	522
Mich.	10	9	13	17	304	357	275	344
Wis.	2	4	-	-	174	314	93	162
W. N. CENTRAL	18	18	201	313	605	663	662	741
Minn.	7	5	32	38	73	177	200	238
Iowa	-	5	31	50	90	67	60	58
Mo.	1	7	5	11	246	209	244	256
N. Dak.	2	-	57	68	15	15	22	21
S. Dak.	-	-	40	91	25	31	24	42
Nebr.	2	-	-	1	53	70	37	53
Kans.	6	1	36	54	103	94	75	73
S. ATLANTIC	81	111	823	837	1,438	1,944	1,127	1,707
Del.	2	1	18	24	32	47	30	52
Md.	35	35	163	186	268	264	223	287
D.C.	1	9	-	-	19	35	U	U
Va.	23	22	220	207	245	239	184	217
W. Va.	-	1	51	46	48	31	42	33
N.C.	9	9	217	172	274	342	171	353
S.C.	1	1	51	62	154	103	116	121
Ga.	4	10	91	73	319	342	329	461
Fla.	6	23	12	67	79	541	32	183
E. S. CENTRAL	15	9	70	109	491	580	335	386
Ky.	2	2	10	20	111	134	56	95
Tenn.	5	4	41	40	126	144	152	153
Ala.	7	3	19	49	158	175	111	118
Miss.	1	-	-	-	96	127	16	20
W. S. CENTRAL	4	11	30	50	760	1,237	727	795
Ark.	1	2	-	-	114	116	66	76
La.	2	7	-	-	71	154	118	170
Okla.	1	1	30	50	105	119	73	85
Tex.	-	1	-	-	470	848	470	464
MOUNTAIN	18	19	87	74	970	943	641	882
Mont.	1	2	24	27	40	21	-	1
Idaho	-	1	1	-	49	33	-	37
Wyo.	-	-	24	26	19	12	14	17
Colo.	10	7	-	1	296	302	246	310
N. Mex.	-	2	5	1	79	108	59	106
Ariz.	2	4	32	19	259	271	197	218
Utah	3	2	1	-	144	130	125	140
Nev.	2	1	-	-	84	66	-	53
PACIFIC	98	88	88	133	1,699	1,774	379	1,863
Wash.	8	5	-	-	147	156	157	267
Oreg.	21	10	-	1	127	144	145	181
Calif.	67	68	71	126	1,337	1,350	-	1,303
Alaska	-	-	17	6	24	16	18	7
Hawaii	2	5	-	-	64	108	59	105
Guam	-	-	-	-	-	20	U	U
P.R.	-	-	19	35	39	189	U	U
V.I.	-	U	-	U	-	U	U	U
Amer. Samoa	-	U	-	U	-	U	U	U
C.N.M.I.	-	U	-	U	-	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

**TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	Shigellosis*				Syphilis (Primary & Secondary)		Tuberculosis	
	NETSS		PHLIS		Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999 <sup>†</sup>
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999				
<b>UNITED STATES</b>	5,409	5,200	2,681	2,833	2,260	2,826	3,483	5,602
<b>NEW ENGLAND</b>	108	134	89	114	28	26	134	146
Maine	4	2	-	-	-	-	2	6
N.H.	1	7	4	6	-	-	2	1
Vt.	1	4	-	3	-	1	-	-
Mass.	72	84	57	70	24	16	88	77
R.I.	10	12	8	9	1	1	12	16
Conn.	20	25	20	26	3	8	30	46
<b>MID. ATLANTIC</b>	799	373	537	194	75	117	864	911
Upstate N.Y.	358	82	136	26	7	10	91	116
N.Y. City	307	127	264	87	23	46	499	456
N.J.	69	106	61	79	14	29	200	183
Pa.	65	58	76	2	31	32	74	156
<b>E. N. CENTRAL</b>	1,006	849	340	432	466	555	457	583
Ohio	89	233	58	47	29	36	94	75
Ind.	252	31	31	11	181	129	23	41
Ill.	287	319	2	273	117	303	255	315
Mich.	308	127	234	85	119	70	51	117
Wis.	70	139	15	16	20	17	34	36
<b>W. N. CENTRAL</b>	556	356	330	260	33	61	182	196
Minn.	97	42	93	53	2	7	63	77
Iowa	145	6	92	8	10	4	13	19
Mo.	255	262	119	168	16	42	76	72
N. Dak.	2	2	1	2	-	-	-	2
S. Dak.	2	8	-	4	-	-	9	3
Nebr.	19	22	9	12	2	4	6	8
Kans.	36	14	16	13	3	4	15	15
<b>S. ATLANTIC</b>	334	834	166	217	680	928	446	1,044
Del.	5	7	3	2	2	4	-	12
Md.	37	50	10	11	125	189	91	98
D.C.	8	25	U	U	23	46	1	19
Va.	66	29	35	9	54	65	57	104
W. Va.	2	4	2	2	1	2	15	19
N.C.	49	77	22	48	240	220	112	153
S.C.	27	39	34	16	84	111	30	134
Ga.	98	85	28	30	136	169	140	221
Fla.	42	518	32	99	15	122	-	284
<b>E. S. CENTRAL</b>	302	456	203	288	378	491	278	361
Ky.	68	54	31	40	42	45	47	69
Tenn.	158	315	160	223	239	262	114	106
Ala.	15	50	9	24	45	118	117	125
Miss.	61	37	3	1	52	66	-	61
<b>W. S. CENTRAL</b>	688	1,128	576	365	348	419	121	835
Ark.	81	41	24	21	44	27	73	61
La.	67	68	53	47	81	107	1	U
Okla.	25	232	8	71	68	94	47	47
Tex.	515	787	491	226	155	191	-	727
<b>MOUNTAIN</b>	386	273	153	163	87	89	168	169
Mont.	3	6	-	-	-	-	6	5
Idaho	28	4	-	3	-	-	5	-
Wyo.	1	2	2	1	1	-	1	1
Colo.	68	47	30	34	2	1	14	U
N. Mex.	41	37	20	22	11	5	19	21
Ariz.	152	143	66	77	71	79	75	92
Utah	33	18	35	20	-	2	20	18
Nev.	60	16	-	6	2	2	28	32
<b>PACIFIC</b>	1,230	797	287	800	165	140	833	1,357
Wash.	291	38	222	48	23	28	82	61
Oreg.	89	28	51	28	3	2	6	39
Calif.	827	710	-	705	139	108	677	1,166
Alaska	7	-	3	-	-	1	30	28
Hawaii	16	21	11	19	-	1	38	63
Guam	-	4	U	U	-	-	-	-
P.R.	1	33	U	U	55	79	-	73
V.I.	-	U	U	U	-	U	-	U
Amer. Samoa	-	U	U	U	-	U	-	U
C.N.M.I.	-	U	U	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\*Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

<sup>†</sup>Cumulative reports of provisional tuberculosis cases for 1999 are unavailable ("U") for some areas using the Tuberculosis Information System (TIMS).

**TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	<i>H. influenzae</i> , Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
	Cum. 2000 <sup>1</sup>	Cum. 1999	A		B		Indigenous		Imported*		Total	
			Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	2000	Cum. 2000	2000	Cum. 2000	Cum. 2000	Cum. 1999
UNITED STATES	495	504	4,248	7,839	2,098	2,681	1	13	-	4	17	51
NEW ENGLAND	35	38	97	87	21	62	-	-	-	-	-	9
Maine	1	4	7	2	5	-	-	-	-	-	-	-
N.H.	6	6	11	7	8	6	-	-	-	-	-	1
Vt.	2	4	3	1	3	1	-	-	-	-	-	-
Mass.	19	16	42	28	3	27	-	-	-	-	-	6
R.I.	1	-	1	9	2	11	-	-	-	-	-	-
Conn.	6	8	33	40	-	17	-	-	-	-	-	2
MID. ATLANTIC	74	80	193	493	212	396	-	-	-	-	-	2
Upstate N.Y.	32	31	91	96	50	81	-	-	-	-	-	2
N.Y. City	18	26	102	132	162	125	-	-	-	-	-	-
N.J.	19	22	-	65	-	57	-	-	-	-	-	-
Pa.	5	1	-	200	-	133	-	-	-	-	-	-
E.N. CENTRAL	64	79	570	1,396	259	245	-	3	-	-	3	1
Ohio	27	27	128	322	46	43	-	2	-	-	2	-
Ind.	10	12	22	47	20	23	-	-	-	-	-	1
Ill.	22	33	204	273	38	-	-	-	-	-	-	-
Mich.	5	7	203	715	154	159	-	1	-	-	1	-
Wis.	-	-	13	39	1	20	-	-	-	-	-	-
W.N. CENTRAL	30	23	527	317	213	119	-	1	-	-	1	-
Minn.	15	12	110	25	14	16	-	-	-	-	-	-
Iowa	-	2	43	68	19	20	-	-	-	-	-	-
Mo.	5	2	260	181	139	68	-	-	-	-	-	-
N. Dak.	1	-	-	1	2	-	-	-	-	-	-	-
S. Dak.	-	1	-	8	-	1	U	-	U	-	-	-
Nebr.	3	3	17	27	18	11	-	-	-	-	-	-
Kans.	6	3	97	7	21	3	-	1	-	-	1	-
S. ATLANTIC	123	107	397	681	343	412	-	-	-	-	-	4
Del.	-	-	-	2	-	-	-	-	-	-	-	-
Md.	31	30	67	137	48	82	-	-	-	-	-	-
D.C.	-	3	3	32	5	11	-	-	-	-	-	-
Va.	27	10	63	54	60	40	-	-	-	-	-	3
W. Va.	4	3	37	13	4	11	-	-	-	-	-	-
N.C.	10	21	84	51	109	100	-	-	-	-	-	-
S.C.	6	2	16	14	3	36	-	-	-	-	-	-
Ga.	40	26	74	202	75	50	-	-	-	-	-	-
Fla.	5	12	53	176	39	82	-	-	-	-	-	1
E.S. CENTRAL	26	37	142	185	128	191	-	-	-	-	-	2
Ky.	9	5	21	33	35	14	-	-	-	-	-	2
Tenn.	14	18	21	76	27	84	-	-	-	-	-	-
Ala.	3	12	26	32	23	46	-	-	-	-	-	-
Miss.	-	2	74	44	43	47	U	-	U	-	-	-
W.S. CENTRAL	27	35	767	2,228	261	420	-	-	-	-	-	3
Ark.	-	1	78	20	41	31	-	-	-	-	-	-
La.	6	9	28	68	46	82	-	-	-	-	-	-
Okla.	20	23	134	238	56	53	-	-	-	-	-	-
Tex.	1	2	527	1,902	118	254	-	-	-	-	-	3
MOUNTAIN	60	51	369	634	180	246	-	8	-	1	9	-
Mont.	-	1	1	12	3	15	-	-	-	-	-	-
Idaho	2	1	13	24	4	13	-	-	-	-	-	-
Wyo.	-	1	6	3	-	5	-	-	-	-	-	-
N. Mex.	11	6	73	114	37	39	-	1	-	1	2	-
Ariz.	12	11	38	20	42	85	-	-	-	-	-	-
Utah	30	28	183	387	67	52	-	-	-	-	-	-
Nev.	4	2	30	22	10	13	-	3	-	-	3	-
	1	1	25	52	17	24	U	4	U	-	4	-
PACIFIC	56	54	1,186	1,818	481	590	1	1	-	3	4	30
Wash.	3	1	120	106	25	23	-	-	-	-	-	5
Oreg.	17	19	95	126	41	49	-	-	-	-	-	10
Calif.	22	28	966	1,575	406	505	U	-	U	3	3	15
Alaska	1	4	5	4	4	8	1	1	-	-	1	-
Hawaii	13	2	-	7	5	5	U	-	U	-	-	-
Guam	-	-	-	2	-	2	U	-	U	-	-	1
P.R.	-	1	42	120	30	114	-	-	-	-	-	-
V.I.	-	U	-	U	-	U	U	-	U	-	-	U
Amer. Samoa	-	U	-	U	-	U	U	-	U	-	-	U
C.N.M.I.	-	U	-	U	-	U	U	-	U	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.

\*For imported measles, cases include only those resulting from importation from other countries.

<sup>1</sup>Of 115 cases among children aged <5 years, serotype was reported for 49 and of those, 11 were type b.

**TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 27, 2000, and May 29, 1999 (21st Week)**

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999
UNITED STATES	968	1,160	3	159	155	65	1,782	2,399	1	48	71
NEW ENGLAND	60	59	-	2	3	15	463	243	-	5	7
Maine	5	4	-	-	-	1	12	-	-	-	-
N.H.	4	9	-	-	1	-	54	52	-	1	-
Vt.	2	4	-	-	-	6	101	9	-	-	-
Mass.	39	34	-	-	2	8	271	170	-	3	7
R.I.	3	2	-	1	-	-	7	3	-	-	-
Conn.	7	6	-	1	-	-	18	9	-	1	-
MID. ATLANTIC	96	112	-	9	19	8	148	519	-	2	9
Upstate N.Y.	25	30	-	6	3	3	80	456	-	2	5
N.Y. City	24	36	-	-	3	-	-	10	-	-	-
N.J.	21	20	-	-	1	-	-	14	-	-	1
Pa.	26	26	-	3	12	5	68	39	-	-	3
E.N. CENTRAL	184	202	-	17	23	1	223	193	-	-	-
Ohio	41	75	-	7	6	-	156	98	-	-	-
Ind.	23	23	-	-	2	-	22	10	-	-	-
Ill.	43	55	-	3	7	-	18	39	-	-	-
Mich.	59	25	-	7	7	1	17	18	-	-	-
Wis.	18	24	-	-	1	-	10	28	-	-	-
W.N. CENTRAL	83	121	2	12	6	8	85	67	-	2	31
Minn.	7	27	-	-	1	7	47	18	-	-	-
Iowa	16	23	1	5	3	-	11	15	-	-	3
Mo.	48	43	-	1	1	-	14	17	-	-	-
N. Dak.	1	3	-	-	-	-	1	-	-	-	-
S. Dak.	4	5	U	-	-	U	1	2	U	-	-
Nebr.	3	8	-	2	-	-	3	1	-	-	28
Kans.	4	12	1	4	1	1	8	14	-	2	-
S. ATLANTIC	123	161	1	24	22	7	137	113	1	28	2
Del.	-	3	-	-	-	1	4	-	-	-	-
Md.	16	29	-	5	4	3	39	36	-	-	1
D.C.	-	1	-	-	2	-	-	-	-	-	-
Va.	28	24	-	4	8	2	15	13	-	-	-
W. Va.	4	3	-	-	-	-	-	1	-	-	-
N.C.	28	23	-	3	5	-	39	27	-	20	1
S.C.	12	23	1	8	3	-	16	7	1	7	-
Ga.	26	30	-	2	-	-	19	12	-	-	-
Fla.	9	25	-	2	-	1	5	17	-	1	-
E.S. CENTRAL	72	88	-	5	3	1	31	51	-	4	2
Ky.	15	16	-	-	-	-	16	12	-	1	-
Tenn.	32	33	-	2	-	1	6	25	-	-	-
Ala.	21	22	-	2	1	-	8	12	-	3	2
Miss.	4	17	U	1	2	U	1	2	U	-	-
W.S. CENTRAL	80	117	-	17	21	2	64	64	-	2	4
Ark.	6	21	-	1	-	-	9	5	-	-	-
La.	25	38	-	3	3	-	3	3	-	-	-
Okla.	19	19	-	-	1	-	6	8	-	-	-
Tex.	30	39	-	13	17	2	46	48	-	2	4
MOUNTAIN	56	83	-	14	6	20	335	264	-	1	13
Mont.	1	2	-	1	-	1	7	1	-	-	-
Idaho	6	8	-	-	-	1	38	91	-	-	-
Wyo.	-	3	-	1	-	-	-	2	-	-	-
Colo.	16	22	-	1	3	9	182	73	-	1	-
N. Mex.	7	10	-	-	N	3	60	19	-	-	-
Ariz.	17	27	-	3	-	4	37	47	-	-	11
Utah	7	6	-	4	2	2	8	29	-	-	1
Nev.	2	5	U	3	1	U	3	2	U	-	1
PACIFIC	214	217	-	59	52	3	296	885	-	4	3
Wash.	23	31	-	3	1	2	105	437	-	-	-
Oreg.	29	39	N	N	N	1	37	17	-	-	-
Calif.	155	138	U	51	45	U	144	411	U	4	3
Alaska	3	5	-	4	1	-	6	3	-	-	-
Hawaii	4	4	U	1	5	U	4	17	U	-	-
Guam	-	1	U	-	1	U	-	1	U	-	-
P.R.	3	7	-	-	-	-	-	7	-	-	-
V.I.	-	U	U	-	U	U	-	U	U	-	U
Amer. Samoa	-	U	U	-	U	U	-	U	U	-	U
C.N.M.I.	-	U	U	-	U	U	-	U	U	-	U

N: Not notifiable.

U: Unavailable.

-: No reported cases.

**TABLE IV. Deaths in 122 U.S. cities,\* week ending  
May 27, 2000 (21st Week)**

Reporting Area	All Causes, By Age (Years)						P&I <sup>†</sup> Total	Reporting Area	All Causes, By Age (Years)						P&I <sup>†</sup> Total
	All Ages	≥65	45-64	25-44	1-24	<1			All Ages	≥65	45-64	25-44	1-24	<1	
<b>NEW ENGLAND</b>	583	428	99	34	13	9	55	<b>S. ATLANTIC</b>	911	567	213	86	28	16	43
Boston, Mass.	135	97	23	8	6	1	18	Atlanta, Ga.	U	U	U	U	U	U	U
Bridgeport, Conn.	52	36	12	2	1	1	4	Baltimore, Md.	164	97	36	23	6	2	15
Cambridge, Mass.	17	12	4	1	-	-	2	Charlotte, N.C.	87	53	21	8	1	4	5
Fall River, Mass.	25	23	2	-	-	-	-	Jacksonville, Fla.	136	79	36	14	4	2	5
Hartford, Conn.	40	26	10	2	1	1	7	Miami, Fla.	U	U	U	U	U	U	U
Lowell, Mass.	30	24	4	1	1	-	3	Norfolk, Va.	52	40	9	2	1	-	1
Lynn, Mass.	9	8	-	1	-	-	-	Richmond, Va.	80	38	23	12	4	3	4
New Bedford, Mass.	27	19	6	1	1	-	1	Savannah, Ga.	43	27	10	5	1	-	3
New Haven, Conn.	42	29	6	4	1	2	4	St. Petersburg, Fla.	76	53	12	5	5	1	4
Providence, R.I.	63	45	10	4	1	3	1	Tampa, Fla.	143	97	28	11	3	4	5
Somerville, Mass.	3	2	-	1	-	-	1	Washington, D.C.	100	65	26	6	3	-	1
Springfield, Mass.	51	38	7	4	1	1	2	Wilmington, Del.	30	18	12	-	-	-	-
Waterbury, Conn.	28	19	7	2	-	-	2	<b>E. S. CENTRAL</b>	741	492	158	57	19	14	53
Worcester, Mass.	61	50	8	3	-	-	10	Birmingham, Ala.	186	129	35	16	4	1	10
<b>MID. ATLANTIC</b>	2,236	1,486	497	155	48	46	101	Chattanooga, Tenn.	84	60	12	7	3	2	2
Albany, N.Y.	54	38	8	4	3	1	6	Knoxville, Tenn.	U	U	U	U	U	U	U
Allentown, Pa.	U	U	U	U	U	U	U	Lexington, Ky.	79	54	17	5	3	-	6
Buffalo, N.Y.	67	45	17	1	-	4	2	Memphis, Tenn.	172	102	45	17	2	6	11
Camden, N.J.	27	15	6	2	2	2	2	Mobile, Ala.	70	52	11	6	-	1	5
Elizabeth, N.J.	15	8	6	1	-	-	1	Montgomery, Ala.	30	20	8	1	1	-	5
Erie, Pa.§	46	34	7	5	-	-	1	Nashville, Tenn.	120	75	30	5	6	4	14
Jersey City, N.J.	U	U	U	U	U	U	U	<b>W. S. CENTRAL</b>	1,445	937	295	121	46	45	66
New York City, N.Y.	1,144	753	260	84	22	21	38	Austin, Tex.	75	50	9	13	2	1	3
Newark, N.J.	65	32	23	6	3	1	-	Baton Rouge, La.	47	31	10	5	-	1	3
Paterson, N.J.	17	8	4	4	1	-	2	Corpus Christi, Tex.	83	65	15	2	1	-	5
Philadelphia, Pa.	400	251	91	34	15	9	24	Dallas, Tex.	164	102	37	13	6	6	3
Pittsburgh, Pa.§	55	43	11	1	-	-	2	El Paso, Tex.	81	55	13	11	-	2	4
Reading, Pa.	30	23	4	2	1	-	1	Ft. Worth, Tex.	97	63	19	6	2	7	6
Rochester, N.Y.	141	107	28	3	-	3	12	Houston, Tex.	334	215	85	19	9	6	19
Schenectady, N.Y.	28	20	8	-	-	-	1	Little Rock, Ark.	80	50	15	7	2	6	4
Scranton, Pa.§	25	24	1	-	-	-	-	New Orleans, La.	72	36	6	10	13	6	3
Syracuse, N.Y.	72	52	10	7	-	3	7	San Antonio, Tex.	225	146	49	22	4	4	5
Trenton, N.J.	29	17	9	1	1	1	-	Shreveport, La.	55	36	11	5	1	2	4
Utica, N.Y.	21	16	4	-	-	1	3	Tulsa, Okla.	132	88	26	8	6	4	7
Yonkers, N.Y.	U	U	U	U	U	U	U	<b>MOUNTAIN</b>	1,077	738	200	91	26	19	82
<b>E. N. CENTRAL</b>	1,997	1,338	411	147	40	58	129	Albuquerque, N.M.	115	80	20	13	1	-	13
Akron, Ohio	41	27	9	4	-	1	2	Boise, Idaho	46	31	8	3	-	4	6
Canton, Ohio	43	26	11	4	1	1	9	Colo. Springs, Colo.	66	42	17	4	2	1	3
Chicago, Ill.	382	240	83	36	12	9	45	Denver, Colo.	118	81	22	9	4	2	12
Cincinnati, Ohio	126	93	19	7	3	4	12	Las Vegas, Nev.	221	137	51	22	5	4	7
Cleveland, Ohio	159	97	38	15	2	7	1	Ogden, Utah	40	28	6	5	1	-	2
Columbus, Ohio	154	105	30	9	3	6	7	Phoenix, Ariz.	188	123	37	15	6	7	14
Dayton, Ohio	109	80	18	6	4	1	5	Pueblo, Colo.	25	19	2	2	2	-	1
Detroit, Mich.	183	95	55	18	6	9	9	Salt Lake City, Utah	104	72	19	8	4	1	10
Evansville, Ind.	59	38	15	4	1	1	2	Tucson, Ariz.	154	125	18	10	1	-	14
Fort Wayne, Ind.	52	37	10	3	-	2	1	<b>PACIFIC</b>	1,210	854	221	80	26	27	100
Gary, Ind.	12	7	2	2	1	-	1	Berkeley, Calif.	18	13	4	1	-	-	2
Grand Rapids, Mich.	46	36	6	2	1	1	-	Fresno, Calif.	144	92	27	18	6	1	8
Indianapolis, Ind.	191	132	38	13	1	7	12	Glendale, Calif.	U	U	U	U	U	U	U
Lansing, Mich.	40	31	7	2	-	-	1	Honolulu, Hawaii	71	57	10	-	2	2	5
Milwaukee, Wis.	111	79	15	10	3	4	2	Long Beach, Calif.	73	47	17	6	2	1	9
Peoria, Ill.	53	31	13	6	1	2	3	Los Angeles, Calif.	U	U	U	U	U	U	U
Rockford, Ill.	53	41	8	3	-	1	3	Pasadena, Calif.	33	22	2	2	2	5	3
South Bend, Ind.	53	42	9	1	-	1	6	Portland, Oreg.	U	U	U	U	U	U	U
Toledo, Ohio	91	69	18	2	1	1	5	Sacramento, Calif.	175	125	31	13	2	4	15
Youngstown, Ohio	39	32	7	-	-	-	3	San Diego, Calif.	165	120	30	8	2	5	14
<b>W. N. CENTRAL</b>	1,098	793	183	76	25	21	84	San Francisco, Calif.	U	U	U	U	U	U	U
Des Moines, Iowa	U	U	U	U	U	U	U	San Jose, Calif.	201	150	35	11	2	3	16
Duluth, Minn.	29	22	6	1	-	-	3	Santa Cruz, Calif.	37	22	11	3	1	-	2
Kansas City, Kans.	161	110	31	12	4	4	14	Seattle, Wash.	131	94	21	13	-	3	15
Kansas City, Mo.	100	64	19	9	4	4	2	Spokane, Wash.	52	36	8	1	5	2	3
Lincoln, Nebr.	45	37	6	-	2	-	4	Tacoma, Wash.	110	76	25	4	2	1	8
Minneapolis, Minn.	181	141	23	11	2	4	17	<b>TOTAL</b>	11,298 <sup>†</sup>	7,633	2,277	847	271	255	713
Omaha, Nebr.	71	52	14	2	-	3	12								
St. Louis, Mo.	122	76	24	15	4	3	2								
St. Paul, Minn.	U	U	U	U	U	U	U								
Wichita, Kans.	389	291	60	26	9	3	30								

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.

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 this Pennsylvania city, 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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