CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

March 20, 1998 / Vol. 47 / No. 10

MMWR™

MORBIDITY AND MORTALITY WEEKLY REPORT

Progress Toward Elimination of Measles from the Americas

In 1994, the Pan American Health Organization (PAHO) established the goal of eliminating measles from the Western Hemisphere by 2000 (*1*). To reach this goal, PAHO developed a measles-elimination strategy that includes three vaccination components ("catch-up," "keep-up," and "follow-up"*) and integrated epidemiologic and laboratory surveillance (*2–5*). The aim of the strategy is to achieve and maintain high levels of measles immunity among infants and children and detect all chains of transmission of measles virus through careful surveillance. This report updates measles surveillance data through February 1998 and summarizes the impact of elimination strategies on measles in the Americas.

Each country in the Region of the Americas, except the United States, the French Antilles, and the Netherlands Antilles, conducted measles "catch-up" campaigns during 1987–1994. Vaccination coverage achieved during these campaigns was 94% regionwide, and country-specific coverage ranged from 71% to 99%. In addition, routine measles vaccination coverage among infants increased from 42% in 1980 to 86% in 1996 (Figure 1). In 1996, a total of 27 (57%) of 47 countries and territories achieved >90% coverage, 15 (32%) achieved 80%–90% coverage, and five (11%) achieved <80% coverage in their routine vaccination services. Since 1994, a total of 26 (55%) of 47 countries and territories also have conducted "follow-up" vaccination campaigns.

The annual number of reported measles cases in the region decreased substantially (Figure 1). In 1996, a record low 2109 confirmed measles cases was reported from the region. Of the 47 countries and territories that provided weekly measles surveillance data to PAHO, 29 (62%) reported no confirmed cases, and 38 (81%) reported ≤10 cases. Most of the region was free of measles virus circulation during 1996.

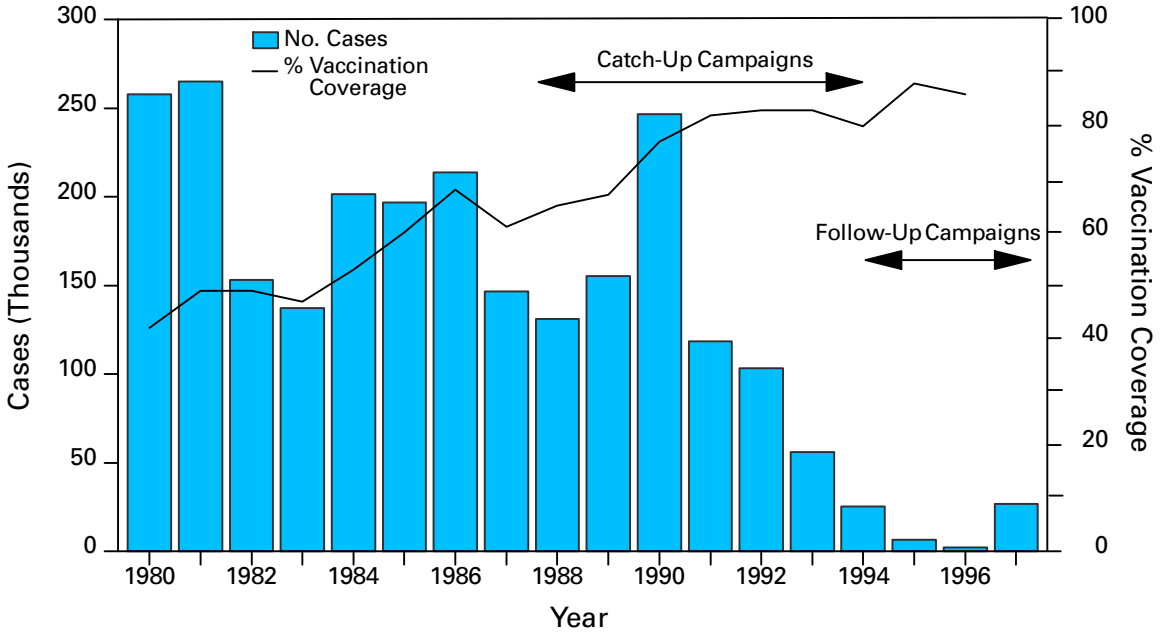
In 1997, however, a resurgence of measles occurred in the region. Provisional data from January 1997 through February 1998 indicate that 88,485 suspected measles cases were reported from the countries. Of these, 27,635 (31%) have been confirmed, 33,120 (37%) have been discarded, and 27,730 (31%) are under investigation.

Of the 27,635 confirmed cases in 1997, a total of 26,919 (97%) were confirmed by laboratory testing or linked epidemiologically to a laboratory-confirmed case, and

*Catch-up is defined as a one-time vaccination campaign targeting all children aged 9 months–14 years regardless of history of measles disease or vaccination status; keep-up is defined as routine services aimed at vaccinating >90% of each successive birth cohort; and follow-up is defined as a vaccination campaign conducted at least every 4 years targeting all children aged 1–4 years.

Elimination of Measles — Continued

FIGURE 1. Reported number of confirmed measles cases and reported measles vaccination coverage, by year* — Region of the Americas, 1980–1997



*Coverage for children at age 1 year through routine vaccination services (excluding Canada and the United States).

Source: Pan American Health Organization/World Health Organization.

716 (3%) were confirmed clinically, without laboratory investigation. Brazil (26,348 confirmed cases) and Canada (570 confirmed cases) accounted for 97% of the total confirmed cases in the region. The United States (135 cases), Paraguay (198), Guadeloupe (116), Argentina (96), Chile (59), Venezuela (27), and Costa Rica (15) all reported >10 confirmed measles cases during 1997.

Brazil

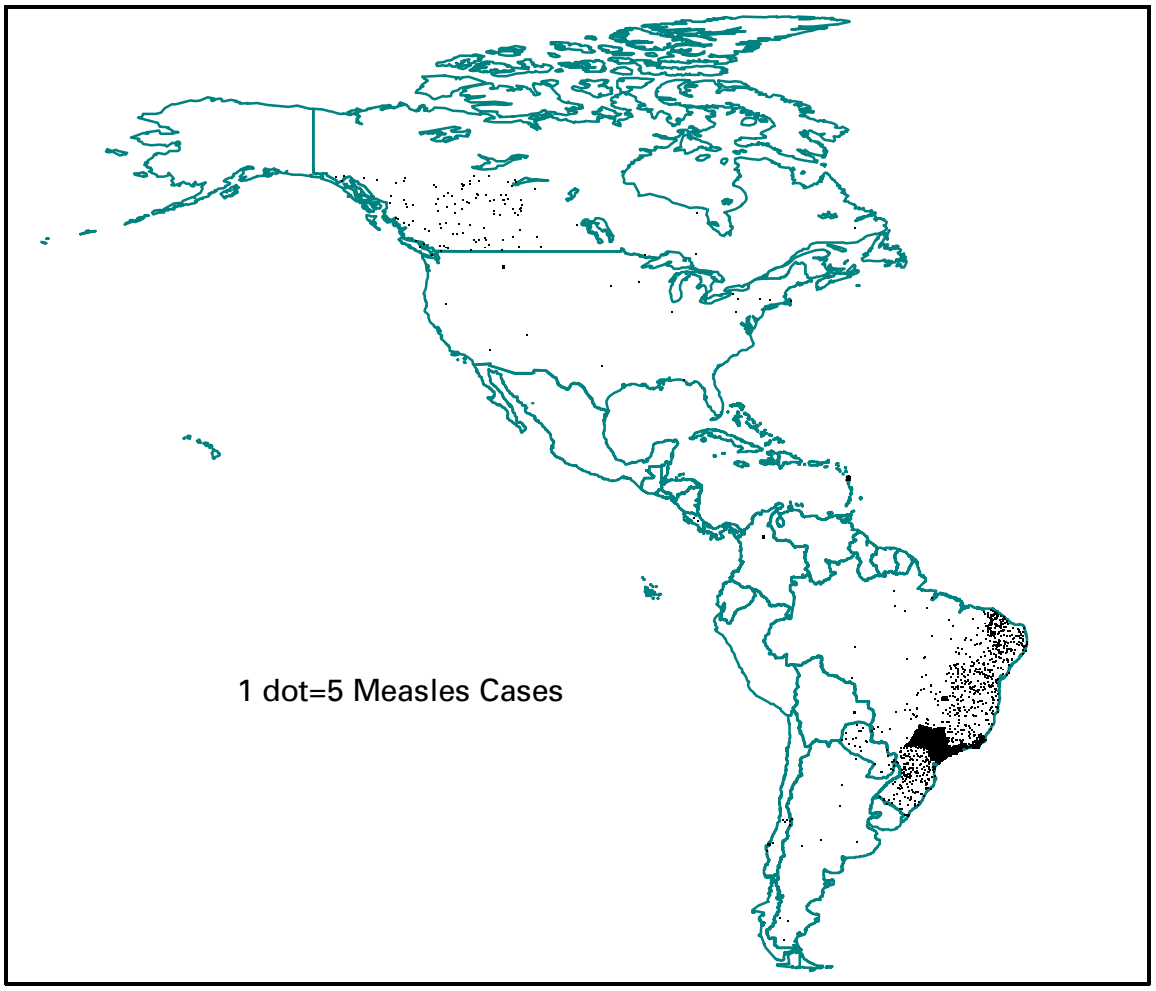
Of the 26,348 confirmed cases reported from Brazil, 20,186 (77%) were reported from São Paulo (Figure 2), the only state that did not conduct a follow-up measles vaccination campaign in 1995. Most cases during this outbreak occurred in persons residing in the greater São Paulo metropolitan area. Of the 19,322 confirmed measles cases reported from São Paulo for which patient age was known, 9938 (51%) occurred in persons aged 20–29 years. The highest age-specific incidence rates were reported for infants aged <1 year (456 cases per 100,000 population), young adults aged 20–29 years (156), and children aged 1–4 years (45).

Many cases occurred among young adults who were members of groups congregating in enclosed environments, including male migrant workers from rural areas, students, health-care workers, tourist industry workers, and military recruits. Twenty measles-related deaths were reported; 17 (85%) occurred among infants aged <1 year.

Genomic sequencing of virus isolates from Brazil, performed by CDC's Respiratory and Enteric Viruses Branch, demonstrated that the virus circulating in São Paulo was similar to virus isolates recently obtained from Western Europe, suggesting that the virus responsible for the outbreak may have been imported from Europe. The

Elimination of Measles — Continued

FIGURE 2. Reported number of confirmed measles cases (n=27,635), by country — Region of the Americas, 1997



measles virus circulating in São Paulo spread to almost every other state in Brazil. Other Brazilian states reporting large numbers of measles cases included Bahia (1013 cases), Minas Gerais (626), Ceara (594), Rio de Janeiro (577), Parana (462), and the Federal District (432). Other countries in the region documenting spread from São Paulo were Argentina, Chile, Costa Rica, Paraguay, Peru, and the United States. Epidemiologic investigation is under way to determine specific risk factors for measles in São Paulo.

Several factors may have facilitated widespread measles transmission in the greater São Paulo metropolitan area in 1997. First, the lack of a timely follow-up vaccination campaign in 1995 for children aged 1–4 years, combined with low routine vaccination coverage among infants, resulted in rapid accumulation of susceptible preschool-aged children. Second, the presence of large numbers of susceptible young adults who had not had natural measles infection or measles vaccination increased the risk for a measles outbreak. Third, measles virus was probably imported from

Elimination of Measles — Continued

Europe into São Paulo. Finally, the high population density of São Paulo greatly facilitated contact between infected and susceptible persons (*6*).

Canada

During 1997, Canada reported 570 confirmed measles cases. Of these, >300 cases occurred in a university community in British Columbia. Most cases occurred in young adults who had been vaccinated previously with one dose of measles vaccine. Genomic analysis of measles virus obtained from patients during this outbreak suggested that measles virus circulating in British Columbia was imported from Europe. Measles virus from the outbreak in British Columbia spread to the neighboring province of Alberta, where 245 cases were reported; most cases occurred in school-aged children who were vaccinated previously with one dose of measles vaccine.

United States

During 1997, the United States reported a provisional total of 135 confirmed measles cases. This is the lowest number of cases ever reported and is less than half the previous record low incidence of 309 cases in 1995. During a 7-week period, no indigenous measles cases were reported, suggesting an interruption of measles transmission. Fifty-seven (42%) of the reported cases were documented as international importations, primarily from Europe and Asia. In 1995 and 1996, no documented importations from Latin American or Caribbean countries to the United States were reported.[†] In 1997, however, five confirmed imported measles cases were reported from Brazil, all from São Paulo. Spread from imported cases was limited, and the largest outbreak in the United States during 1997 comprised eight cases.

Reported by: Special Program for Vaccines and Immunization, Pan American Health Organization, Washington, DC.

Editorial Note: Substantial progress has been made toward eliminating measles virus from the Americas. Most countries have implemented PAHO's measles-elimination strategy, and indigenous measles virus circulation has been interrupted in large geographic areas of the region. In addition, improvements have been made in measles surveillance throughout the region, including the development of a regional measles laboratory network with at least one measles reference laboratory in every country.

Although the relative resurgence of measles in the Americas during 1997 represented a major increase over the number of cases reported in 1996, these cases still represented only approximately 10% of those reported in 1990. Moreover, the measles cases reported in the Americas in 1996, the last year for which comparable data were available, represented only 0.3% of the total reported global cases (*7*). Measles case surveillance data, combined with molecular epidemiologic information provided by PAHO's measles laboratory network, suggest the countries of the Americas are constantly challenged by imported measles virus from other regions of the world in which measles remains endemic (*8,9*).

The outbreak in Brazil demonstrates that the absence of measles virus circulation does not indicate the absence of risk for measles outbreaks. This outbreak highlights several major challenges facing the region. First, the countries of the Americas need to achieve and maintain the highest population immunity level possible in infants and children and to supplement existing strategies by targeting measles vaccination to

[†] In 1995, one case that could have been imported from a Latin American country was reported; however, subsequent investigation revealed no evidence of measles transmission in that country.

Elimination of Measles — Continued

adolescents and young adults at highest risk for exposure to measles virus. Second, surveillance needs to be strengthened to detect population groups susceptible to measles and possible foci of transmission established by measles importations. Finally, increased efforts for control and regional elimination of measles are needed in other regions of the world to decrease the quantity of measles virus exported to the Americas as a step toward global measles eradication (*10*).

References

1. Pan American Health Organization. Measles elimination by the year 2000. EPI Newsletter 1994;16(October):1–2.
2. de Quadros CA, Olive JM, Hersh BS, et al. Measles elimination in the Americas: evolving strategies. JAMA 1996;275:224–9.
3. Arista S, Ferraro D, Cascio A, Vizzi E, di Stefano R. Detection of IgM antibodies specific for measles virus by capture and indirect enzyme immunoassays. Res Virol 1995;146:225–32.
4. Helfand RF, Heath JL, Anderson LJ, et al. Diagnosis of measles with an IgM capture EIA: the optimal timing of specimen collection after rash onset. J Infect Dis 1997;175:195–9.
5. Bellini WJ, Rota PA. Genetic diversity of wild-type measles viruses: implications for global measles elimination programs. Emerg Infect Dis 1998;4:29–35.
6. Pan American Health Organization. Update: São Paulo measles outbreak. EPI Newsletter 1997;19(June):1–2.
7. World Health Organization. Expanded Programme on Immunization Information System—global summary. Geneva, Switzerland: World Health Organization, August 1997.
8. Rota JS, Heath JL, Rota PA, et al. Molecular epidemiology of measles virus: identification of pathways of transmission and implications for measles elimination. J Infect Dis 1996;173:32–7.
9. Vitek CR, Redd SC, Redd SB, Hadler SC. Trends in importation of measles to the United States, 1986–1994. JAMA 1997;277:1952–6.
10. CDC. Measles eradication: recommendations from a meeting co-sponsored by the World Health Organization, the Pan American Health Organization, and CDC. MMWR 1997;46(no. RR-11).

Suicide Among Black Youths — United States, 1980–1995

Although black youths have historically had lower suicide rates than have whites, during 1980–1995, the suicide rate for black youths aged 10–19 years increased from 2.1 to 4.5 per 100,000 population. As of 1995, suicide was the third leading cause of death among blacks aged 15–19 years (*1*), and high school-aged blacks were as likely as whites to attempt suicide (*2*). This report summarizes trends in suicide among blacks aged 10–19 years in the United States during 1980–1995 and indicates that suicidal behavior among all youths has increased; however, rates for black youths have increased more, and the gap between rates for black and white youths has narrowed.

Data for suicides were obtained from CDC's National Center for Health Statistics Underlying Cause of Death Mortality file (*3*) and were based on the *International Classification of Diseases, Ninth Revision**. Population estimates were obtained from the Bureau of the Census decennial estimates for 1980 and 1990. Age-specific rates were calculated per 100,000 population.

During 1980–1995, a total of 3030 blacks aged 10–19 years committed suicide in the United States. During this period, the suicide rate for blacks aged 10–19 years increased 114%. In 1980, the suicide rate for whites aged 10–19 years was 157% greater

*Suicide codes were for poisoning (E950.0–E952.9), strangulation (E953.0–953.9), firearms use (E955.0–E955.4), and cutting (E956.0–E956.9).

Suicide Among Black Youths — Continued

than the rate for blacks. By 1995, the rate for whites was only 42% greater than the rate for blacks.

Among blacks and whites aged 10–19 years, the suicide rate increased most for blacks aged 10–14 years (233%), compared with a 120% increase for whites (Figure 1). Among blacks aged 15–19 years, the suicide rate increased 126%, compared with 19% for whites (Figure 2). Among black males aged 15–19 years, the suicide rate increased 146%, compared with 22% for white males.

Firearms use was the predominant method of suicide for blacks aged 10–19 years, accounting for 66% of suicides in this group. Among blacks aged 15–19 years, firearms use accounted for 69% of suicides, followed by strangulation (18%). Among black males aged 15–19 years, firearms use accounted for 72% of suicides, followed by strangulation (20%). Firearm-related suicides accounted for 96% of the increase in the suicide rate for blacks aged 10–19 years.

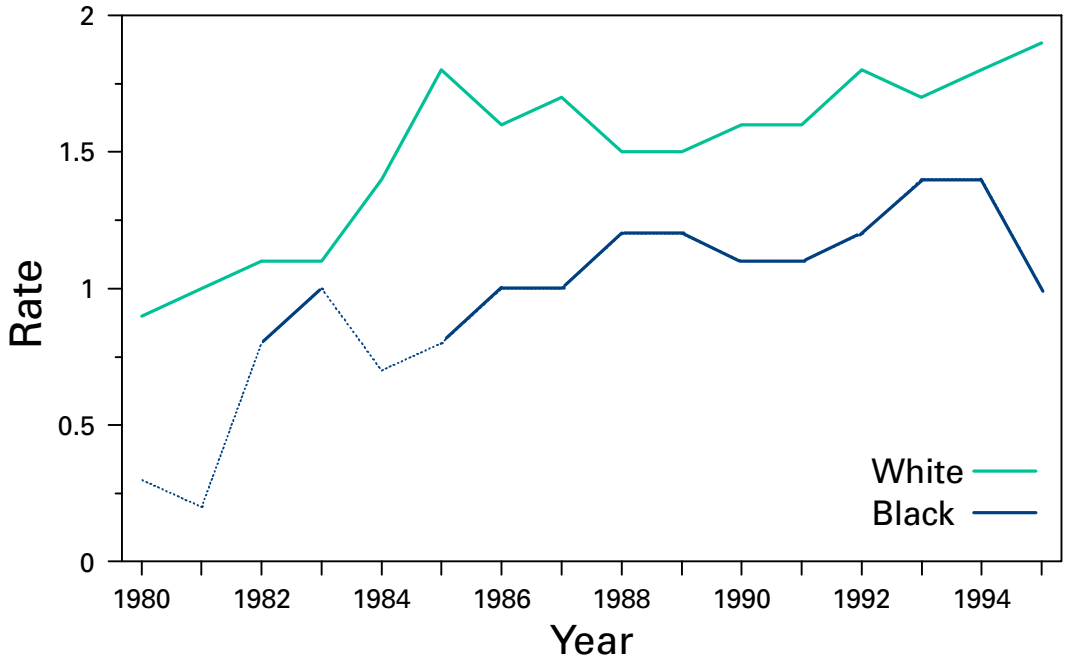
During 1980–1995, trends in suicide rates for black youths differed by region.[†] The largest increase in suicide rates occurred for blacks aged 15–19 years in the South (214%), followed by the Midwest (114%). By sex, the largest increase in suicides occurred among black males aged 15–19 years in the South (223%).

Reported by: Div of Violence Prevention, National Center for Injury Prevention and Control, CDC.

Editorial Note: Although suicides have increased overall among youths (*4*), the findings in this report indicate that, during 1980–1995, suicide rates for black youths have

[†] *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*=Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

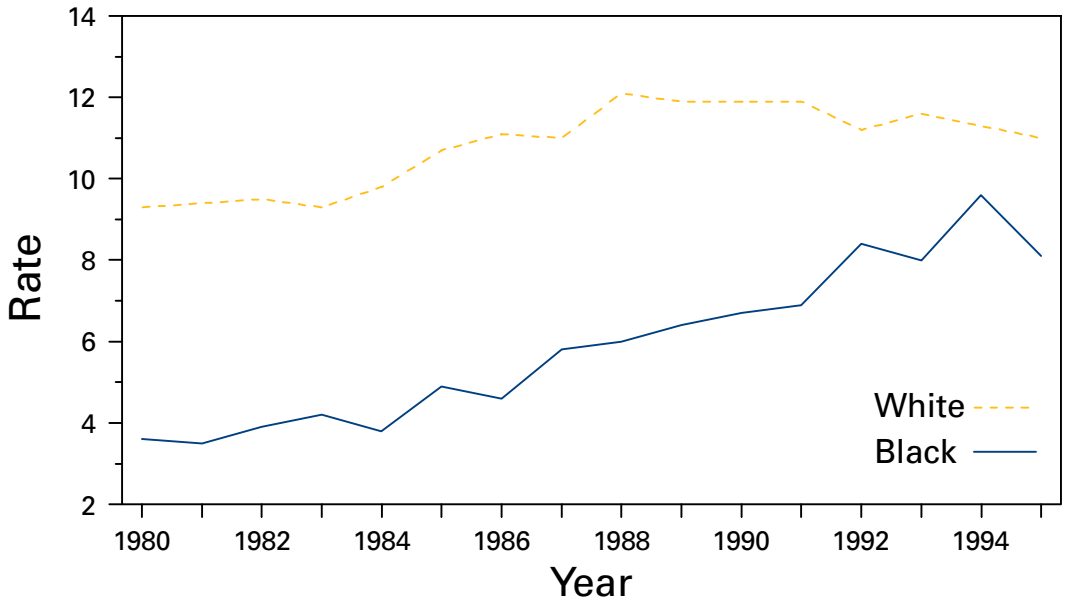
FIGURE 1. Suicide rates* for blacks and whites aged 10–14 years, by year — United States, 1980–1995†



*Per 100,000 population.
†Broken lines indicate years with <20 cases.

Suicide Among Black Youths — Continued

FIGURE 2. Suicide rates* for blacks and whites aged 15–19 years, by year — United States, 1980–1995



*Per 100,000 population.

increased substantially, particularly in the South. In addition, the difference in suicide rates for blacks and whites has decreased substantially.

Risk factors associated with suicides among youth include hopelessness; depression; family history of suicide; impulsive and aggressive behavior; social isolation; a previous suicide attempt; and easier access to alcohol, illicit drugs, and lethal suicide methods (*5*). Changes in some risk factors (e.g., breakdown of the family and easier access to alcohol, illicit drugs, and lethal suicide methods) may account for the increasing suicide rate among youths. However, these changes may not account for the increase in suicides among blacks aged 10–19 years. One possible factor may be the growth of the black middle class (*6*). Black youths in upwardly mobile families may experience stress associated with their new social environments. Alternatively, these youths may adopt the coping behaviors of the larger society in which suicide is more commonly used in response to depression and hopelessness (*7*). Another factor may be differential recording of suicide as a cause of death on death certificates. Suicide as a cause of death may be entered less readily for black youths than for white youths (*8*).

In addition, risk factors associated with suicide among youths in general may not predict suicidal behaviors among black youths. Differences in the social environments and life experiences of black and white youths suggest the need to determine whether risk factors for suicide in black youths differ from those of whites. For example, the exposure of black youths to poverty, poor educational opportunities, and discrimination may have negatively influenced their expectations about the future and, consequently, enhanced their resiliency to suicide (*9*).

Suicide Among Black Youths — Continued

Although youth suicide prevention programs exist, little is known about their effectiveness in reducing suicidal behavior (*10*). These programs also may not address the risk factors associated with the increasing suicide rates for black youths. If risk factors for suicide differ for black and white youths, existing programs for suicide prevention that target black youths may need to be modified.

A better understanding of the risk factors associated with suicide among black youths is needed to develop appropriate prevention and treatment programs. Evaluations of existing programs to prevent youth suicide should examine the potential for differential effects on black youths.

References

1. CDC. Ten leading causes of death, 1995. Atlanta: US Department of Health and Human Services, CDC, 1997.
2. CDC. Youth risk behavior surveillance—United States, 1995. MMWR 1996;45(no. SS-4).
3. National Center for Health Statistics. Vital statistics mortality data, underlying cause of death, 1980–1995 [Machine-readable public-use data tapes]. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, 1983–1993.
4. Kachur SP, Potter LB, James SP, Powell KE. Suicide in the United States, 1980–1992. Atlanta: US Department of Health and Human Services, CDC, 1995. (Violence surveillance summary series, no. 1).
5. Garland A, Zigler E. Adolescent suicide prevention: current research and social policy implications. Am Psychol 1993;48:169–82.
6. Davis R. Black suicide and the relational system: theoretical and empirical implications of communal and familial ties. Research Race Ethnic Relations 1980;2:43–71.
7. Feldman M, Wilson A. Adolescent suicidality in urban minorities and its relationship to conduct disorders, depression, and separation anxiety. J Am Acad Child Adolesc Psychiatry 1997;36: 75–84.
8. Sorenson SB, Shen H. Youth suicide trends in California: an examination of immigrant and ethnic group risk. Suicide Life Threat Behav 1996;26:143–54.
9. Gibbs JT. African-American suicide: a cultural paradox. Suicide Life Threat Behav 1997;27: 68–79.
10. CDC. Youth suicide prevention programs: a resource guide. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, 1992.

Update: Influenza Activity — United States, 1997–98 Season

In collaboration with the World Health Organization (WHO), its collaborating laboratories, and state and local health departments, CDC conducts surveillance to monitor influenza activity and to detect antigenic changes in the circulating strains of influenza viruses. This report summarizes influenza surveillance in the United States from September 28, 1997, through March 7, 1998, and presents reports of outbreaks in long-term care facilities (LTCFs) in three states and at a military base. The findings indicate that this season has been dominated by influenza A(H3N2) viruses and characterized by a sustained elevation in pneumonia and influenza (P&I)-related deaths.

Influenza activity in the United States began during October, increased sharply during December and January, peaked during late January through early February, then declined. From September 28, 1997, through March 7, 1998, WHO collaborating laboratories tested 64,421 clinical specimens for respiratory viruses, and 10,264 (16%) were positive for influenza. Of these, 10,247 (99.8%) were influenza A, and 17 (0.2%) were influenza B. Of 2453 influenza A isolates that were subtyped, 2447 (99.8%) were A(H3N2), and six (0.2%) were A(H1N1). Of the H3N2 influenza A viruses, 188 were

Influenza Activity — Continued

antigenically characterized by CDC; 44 (23%) were similar to A/Nanchang/933/95(H3N2), the A/Wuhan/359/95(H3N2)-like component in the 1997–98 influenza vaccine, and 144 (77%) were similar to A/Sydney/05/97(H3N2), a related but antigenically distinguishable variant of the A(H3N2) component of the 1997–98 influenza vaccine. All eight antigenically characterized influenza B and five of six antigenically characterized influenza A(H1N1) viruses were similar to the 1997–98 influenza vaccine components.

State and territorial epidemiologists first reported widespread influenza activity* from Pennsylvania for the week ending December 20. Influenza activity peaked in the United States during the week ending February 7, when 46 states and New York City reported regional or widespread activity. During the week ending March 7, the number of states reporting regional or widespread influenza activity declined to 27.

The percentage of patient visits to sentinel physicians for influenza-like illness (ILI) first exceeded baseline levels (0–3%) during the week ending January 3, peaked at 5% from January 18 through February 7, and returned to baseline levels during the week ending February 21. The percentage of deaths attributed to P&I as reported by the vital statistics offices of 122 cities first exceeded the epidemic threshold† during the week ending January 10 and has remained elevated for 9 consecutive weeks.

As of March 7, a total of 359 outbreaks of ILI in LTCFs have been reported to CDC from the state health departments in Connecticut, New York, and Virginia. Three outbreaks in LTCFs and one on a military base are described in this report. In these investigations, disease and influenza vaccination status of residents of LTCFs and vaccination status of military squadron members were ascertained by medical record review. Among staff of LTCFs and among military squadron members, disease status was ascertained by self-administered questionnaires. ILI was defined as either 1) a positive culture or rapid-antigen test for influenza in a person with respiratory symptoms or 2) cough and either perceived or measured fever (≥100 F [≥37.8 C]) or chills. For the LTCF in Connecticut, measured fever was defined as a temperature ≥100.5 F (≥38.1 C). An influenza-related death was defined as a death that occurred within 2 weeks of onset of ILI, with no intervening asymptomatic period and no alternative explanation (*1*). Vaccine effectiveness (VE) was calculated as: VE=[ARU–ARV/ARU] x 100; ARU is the attack rate in unvaccinated persons, and ARV is the attack rate in vaccinated persons (*2*).

Connecticut

All Connecticut LTCFs are required to report outbreaks of respiratory disease to the Connecticut Department of Public Health (CDPH). When reports are received, LTCFs are encouraged to test for influenza. Rapid-antigen testing and/or culture are made available at no cost by the state laboratory during the influenza season. LTCFs are encouraged to implement influenza outbreak control measures as recommended by the Advisory Committee on Immunization Practices (ACIP) (*3*).

---

*Levels of activity are 1) *no activity*; 2) *sporadic*—sporadically occurring influenza-like illness (ILI) or culture-confirmed influenza with no outbreaks detected; 3) *regional*—outbreaks of ILI or culture-confirmed influenza in counties with a combined population of <50% of the state's total population; and 4) *widespread*—outbreaks of ILI or culture-confirmed influenza in counties with a combined population of ≥50% of the state's total population.

†The epidemic threshold is 1.645 standard deviations above the seasonal baseline. The expected seasonal baseline is projected using a robust regression procedure in which a periodic regression model is applied to observed percentages of deaths from P&I since 1983.

Influenza Activity — Continued

From December 1, 1997, through February 28, 1998, a total of 118 (44%) of 271 LTCFs reported respiratory outbreaks to CDPH; 21 were confirmed as influenza A outbreaks. On December 12, 1997, a LTCF in New Haven County reported an outbreak of influenza A. Because this was the first confirmed influenza outbreak in the state for the 1997–98 season, an epidemiologic investigation was conducted.

The LTCF has 172 staff and 131 residents distributed in four units. Of nasopharyngeal swab specimens obtained from 42 residents with ILI, 20 (48%) were positive for influenza A by rapid-antigen testing. Influenza A (H3N2) was identified by culture in nine specimens at the state laboratory, and three isolates were further characterized at CDC by hemagglutination-inhibition testing as A/Sydney/05/97(H3N2)-like. Medical records of all residents were reviewed. From December 6, 1997, through January 3, 1998, a total of 57 (49%) of 116 vaccinated residents and seven (47%) of 15 unvaccinated residents developed ILI (VE=-5% [95% confidence interval (CI)=-87%–41%]). Five (4%) vaccinated residents and one (7%) unvaccinated resident died from influenza-related complications (VE=35% [95% CI=-416.8%–91.9%]). Beginning December 17, amantadine treatment was provided to two persons with ILI, and starting December 19, amantadine prophylaxis was provided to 21 residents who were asymptomatic.

New York

Each year, the New York State Department of Health sends a memorandum to LTCFs and other institutions recommending vaccination of residents, use of rapid-antigen testing during outbreaks of ILI, and rapid implementation of ACIP-recommended outbreak-control measures if influenza is confirmed (*3*).

From October 30, 1997, through February 17, 1998, a total of 213 (33%) of 650 LTCFs in New York state reported laboratory-confirmed influenza A by rapid-antigen test or culture, representing a 245% increase over the 87 laboratory-confirmed influenza A outbreaks reported during the 1996–1997 influenza season. Of 47 facilities from which complete data were available, all reported prophylactic use of amantadine/rimantadine, and the median ILI attack rate was 12% (range: 2%–49%).

On January 7, 1998, a LTCF in Westchester County reported a severe outbreak of ILI. The facility has 180 day-shift staff and 270 residents in six units. On December 24, 1997, respiratory specimens were analyzed by a rapid immunofluorescent antibody test and were negative for influenza. However, on January 7, 1998, two specimens cultured at the state laboratory were positive for influenza A(H3N2). One isolate was further characterized at CDC as A/Sydney/05/97(H3N2)-like. Although rimantadine prophylaxis was administered to eligible residents on January 7, 1998, the outbreak had already peaked. From December 16, 1997, through January 7, 1998, a total of 59 (22%) of 264 vaccinated residents and one (17%) of six unvaccinated residents developed ILI (VE=-34% [95% CI=-714%–78%]). Four (2%) vaccinated residents and one (17%) unvaccinated resident died of influenza-related complications (VE=91% [95% CI=30.3%–98.8%]). Among the staff, 172 (96%) of 180 day-shift staff persons completed a self-administered questionnaire; 18 (30%) of 60 vaccinated and 36 (32%) of 111 unvaccinated persons developed ILI (VE=7.5% [95% CI=-48.1%–42.2%]).

Virginia

During the 1997–98 influenza season, the Virginia Department of Health (VDH) conducted active surveillance for outbreaks of ILI in LTCFs and recommended that LTCFs

Influenza Activity — Continued

confirm influenza using rapid-antigen tests provided by the state laboratory and implement ACIP-recommended outbreak-control measures (*3*) .

From January 26 through February 27, 1998, the VDH received reports of respiratory disease outbreaks from 28 (10%) of 290 licensed LTCFs. On January 26, a LTCF in Henrico County reported an outbreak of ILI. On January 31, influenza A was cultured at the state laboratory from five (71%) of seven nasopharyngeal swab specimens obtained from ill residents. Four isolates were further characterized at CDC as A/Sydney/05/97(H3N2)-like. The facility had 202 staff members and 190 residents in five units.

During January 7–31, a total of 42 (28%) of 150 vaccinated residents and 15 (38%) of 40 unvaccinated residents developed ILI (VE=25% [95% CI=-20.1%–53.6%]). Nine (6%) vaccinated residents and two (5%) unvaccinated residents died from influenza-related complications (VE=-20% [95% CI=-434%–73%]). When all deaths associated with respiratory complications during the outbreak period were included, including those not meeting the ILI case definition, 10 (7%) deaths occurred among the vaccinated and four (10%) among the unvaccinated (VE=33% [95% CI=-101.5%–77.9%]). Among the staff, 16 (16%) of 101 vaccinated persons and 18 (18%) of 101 unvaccinated persons developed ILI (VE=11% [95% CI=-64.3%–51.9%]). Outbreak control measures, including antiviral prophylaxis, were fully implemented by January 31.

Military Base

On January 15, 1998, an outbreak of ILI was reported among members of an Air Force squadron in Hawaii. Influenza type A was isolated at the base laboratory from four nasopharyngeal swab specimens collected from squadron members. One isolate was further characterized at CDC as A/Sydney/05/97(H3N2). Of 362 squadron members, 254 (70%) completed the questionnaire.

During January 1–30, 1998, a total of 40 (20%) of 197 vaccinated squadron members and 13 (24%) of 54 unvaccinated squadron members had ILI (VE=16% [95% CI=-46.0%–51.3%]). Median duration of illness was 6 days (range: 2–14 days) among vaccinated members and 5 days (range: 3–21 days) among the unvaccinated. Twenty-four (63%) of 38 vaccinated persons who had ILI and seven (54%) of 13 unvaccinated persons who had ILI and who responded to the questionnaire reported being sent home by the squadron's doctor and staying in bed because of symptoms (relative risk=1.17; 95% CI=0.7–2.1). Amantadine was not provided for prophylaxis, but was used to treat 12 cases.

Reported by: ML Cartter, MD, Coordinator, Epidemiology Program, NL Barrett, MS, Connecticut Dept of Public Health; DR Mayo, ScD, SH Egbertson, Connecticut State Laboratory, Hartford, Connecticut. D Ackman, MD, S Kondracki, G Brady, H Leib, ME Hennessy, R Gallo, L Grady, PhD, P Smith, MD, State Epidemiologist, New York State Dept of Health. S Jenkins, VMD, Acting State Epidemiologist, D Woolard, PhD, M Linn, MURP, E Barrett, DMD, J Rullan, MD, Office of Epidemiology, Virginia Dept of Health; J Pearson, DrPH, B Meisel, Virginia Div of Consolidated Laboratory Svcs; C Thorpe, MD, P Young, Henrico Health District; BG Regirer, LLM, S Jones, MD, P Gershonoff, V Altman, Henrico County long-term care facility, Richmond, Virginia. N Anderson, Univ of Michigan, Ann Arbor. HJ Beecham III, MD, AJ Yund, MD, Navy Environmental and Preventive Medicine Unit No. 6; MB Weigner, MD, J Herbst, BS Wiseman, Navy Medical Clinic, Pearl Harbor, Hawaii. LC Canas, Project Gargle, Brooks Air Force Base, San Antonio, Texas. Participating state and territorial epidemiologists and state public health laboratory directors. World Health Organization collaborating laboratories. State Br, Epidemiology Program Office; Influenza Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

Influenza Activity — Continued

Editorial Note: Both the 1996–97 and the 1997–98 seasons have been dominated by influenza A(H3N2) viruses and characterized by sustained elevations in P&I-related excess deaths. The predominant A(H3N2) strains identified in the United States during the 1997–98 season have been A/Sydney/05/97(H3N2)-like, which are variants of the strain contained in the 1997–98 vaccine. Although influenza outbreaks among all age groups have been reported to CDC, most have been reported in elderly nursing home residents.

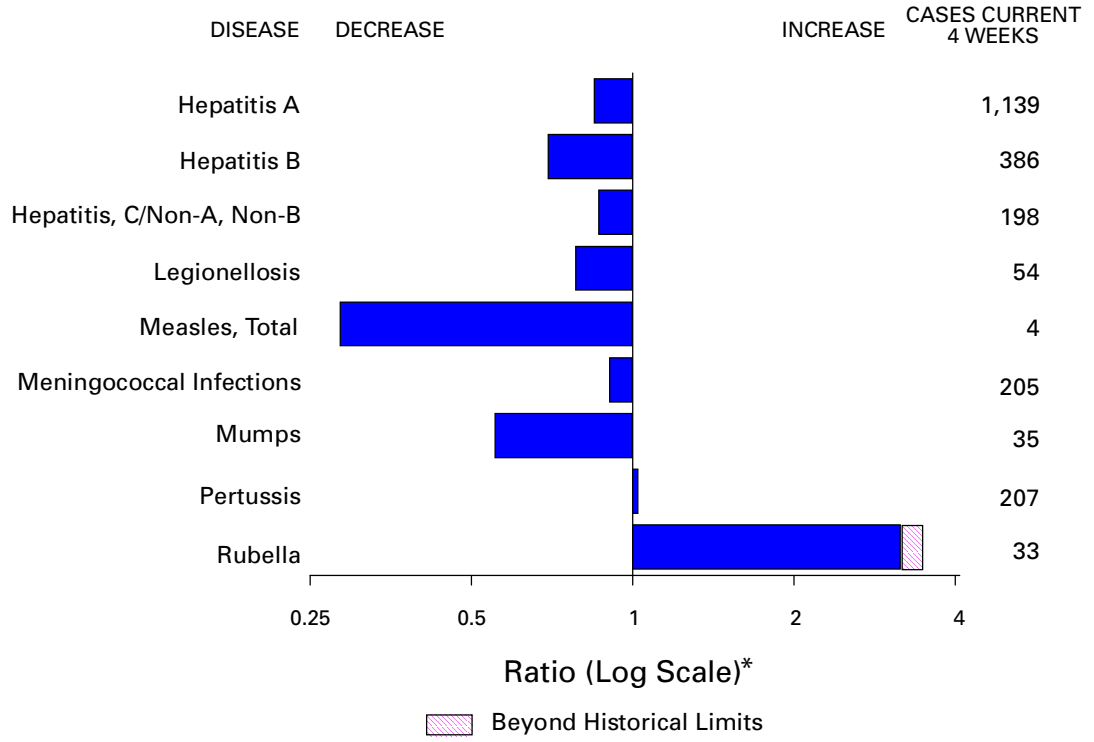
The outbreak investigations reported here all were associated with A/Sydney/05/97(H3N2)-like viruses and suggest that protection provided by the current vaccine against illness caused by this variant strain may have been low. This is consistent with previous reports with variant strains (*4–6*). In the outbreaks in Connecticut and New York, influenza vaccination appeared to reduce death rates, even when it failed to prevent ILI. Although the reduced risk was statistically significant in only one of the outbreaks, this also is consistent with previous studies (*3,5–8*) and underscores the importance of vaccinating persons at high risk for influenza-related complications and death even in years when the match between vaccine and circulating strain is not optimal (*3*). The timely implementation of outbreak control measures within institutions, including vaccination of residents, reduced contact between ill and non-ill persons, and antiviral prophylaxis of all non-ill persons and antiviral treatment of ill persons when the outbreak is caused by influenza type A, may reduce morbidity and mortality (*3*).

Throughout the influenza season, surveillance data collected by CDC are updated weekly and are available through the CDC voice information system, telephone (888) 232-3228, or the fax information system, telephone (888) 232-3299, by requesting document number 361100, or through CDC's Influenza Branch, Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases World-Wide Web site http://www.cdc.gov/ncidod/diseases/flu/weekly.htm. Information about local influenza activity is available from many county and state health departments.

References

1. Patriarca PA, Weber JA, Parker RA, et al. Efficacy of influenza vaccine in nursing homes: reduction in illness and complications during an influenza A(H3N2) epidemic. JAMA 1985;253:1136–9.
2. Orenstein WA, Bernier RH, Hinman AR. Assessing vaccine efficacy in the field. Epidemiol Rev 1988;10:212–41.
3. ACIP. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(no. RR-9).
4. Arroyo J, Postic B, Brown A, Harrison K, Birgenheier R, Dowda H. Influenza A/Philippines/2/82 outbreak in a nursing home: limitations of influenza vaccination in the aged. Am J Infection Control 1984;12:329–34.
5. Strassburg MA. Influenza in the elderly: report of an outbreak and a review of vaccine effectiveness reports. Vaccine 1986;4:38–44.
6. Dindinaud G, Potiron G, Agius G, et al. Influenza epidemic among a community of elderly people in spite of vaccination. Eur J Epidemiol 1993;9:667–70.
7. Arden NH, Patriarca PA, Kendal AP. Experiences in the use and efficacy of inactivated influenza vaccine in nursing homes. In: Kendal AP, Patriarca PA, eds. Options for the control of influenza. New York: Alan R. Liss Inc, 1986:155–68.
8. Gross PA, Quinnan GV, Rodstein M, et al. Association of influenza immunization with reduction in mortality in an elderly population: a prospective study. Arch Intern Med 1988;148:562–5.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending March 14, 1998, 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 March 14, 1998 (10th Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	-
Brucellosis	3	Poliomyelitis, paralytic[¶]	-
Cholera	-	Psittacosis	7
Congenital rubella syndrome	-	Rabies, human	-
Cryptosporidiosis*	286	Rocky Mountain spotted fever (RMSF)	13
Diphtheria	-	Streptococcal disease, invasive Group A	369
Encephalitis: California*	-	Streptococcal toxic-shock syndrome*	15
eastern equine*	-	Syphilis, congenital**	5
St. Louis*	-	Tetanus	1
western equine*	-	Toxic-shock syndrome	20
Hansen Disease	20	Trichinosis	1
Hantavirus pulmonary syndrome*[†]	-	Typhoid fever	45
Hemolytic uremic syndrome, post-diarrheal*	1	Yellow fever	-
HIV infection, pediatric*[§]	39		

-: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–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update February 22, 1998.
[¶] One suspected case of polio with onset in 1998 has also been reported to date.
**Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending March 14, 1998, and March 8, 1997 (10th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1998	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997
UNITED STATES	7,421	10,995	81,080	81,773	137	45	51,457	53,265	530	512
NEW ENGLAND	202	259	3,577	3,315	19	8	999	1,170	5	11
Maine	4	16	195	161	-	-	9	8	-	-
N.H.	11	2	160	154	5	2	22	40	-	2
Vt.	8	10	60	79	-	-	1	10	-	-
Mass.	73	122	1,638	1,351	10	6	431	457	5	9
R.I.	21	29	476	402	1	-	62	112	-	-
Conn.	85	80	1,048	1,168	3	-	474	543	-	-
MID. ATLANTIC	2,112	3,537	11,050	10,655	8	1	6,426	6,796	64	38
Upstate N.Y.	299	541	N	N	8	-	718	1,089	59	27
N.Y. City	1,160	1,785	6,767	5,729	-	1	3,185	2,790	-	-
N.J.	287	776	810	2,025	-	-	717	1,393	-	-
Pa.	366	435	3,473	2,901	N	-	1,806	1,524	5	11
E.N. CENTRAL	512	727	15,840	13,175	23	7	11,090	8,546	86	133
Ohio	93	167	4,849	4,099	8	-	2,973	2,790	5	5
Ind.	81	87	1,741	1,674	5	3	1,156	1,201	2	1
Ill.	249	250	4,402	2,053	9	-	3,475	1,108	4	21
Mich.	57	178	4,025	3,217	1	-	3,161	2,557	75	106
Wis.	32	45	823	2,132	N	4	325	890	-	-
W.N. CENTRAL	152	264	5,434	5,909	11	6	2,134	2,511	71	24
Minn.	22	38	1,041	1,407	3	2	366	461	-	-
Iowa	9	45	731	999	1	-	199	239	5	3
Mo.	76	140	1,624	2,036	1	3	791	1,316	66	16
N. Dak.	3	2	20	189	1	1	4	14	-	1
S. Dak.	5	2	338	188	-	-	59	28	-	-
Nebr.	15	20	537	269	3	-	193	86	-	-
Kans.	22	17	1,143	821	2	-	522	367	-	4
S. ATLANTIC	1,890	2,791	19,347	15,626	20	6	16,146	16,289	31	43
Del.	36	38	445	-	-	-	287	205	-	-
Md.	239	316	1,493	1,180	9	4	1,571	2,408	2	5
D.C.	192	192	N	N	-	-	682	889	-	-
Va.	114	245	2,248	2,202	N	2	1,472	1,704	1	4
W. Va.	19	17	597	649	N	-	161	206	2	1
N.C.	107	153	4,072	3,519	6	-	3,581	3,122	7	16
S.C.	129	156	3,505	2,313	1	-	2,345	2,296	-	12
Ga.	229	374	3,804	1,444	2	-	3,432	2,340	6	-
Fla.	825	1,300	3,183	4,319	2	-	2,615	3,119	13	5
E.S. CENTRAL	291	318	6,746	6,066	7	3	6,619	6,456	15	58
Ky.	39	32	1,194	1,179	2	-	738	823	-	1
Tenn.	107	135	2,596	2,171	3	3	2,269	1,930	12	24
Ala.	86	89	2,023	1,530	2	-	2,566	2,223	3	4
Miss.	59	62	933	1,186	-	-	1,046	1,480	-	29
W.S. CENTRAL	896	942	4,813	9,172	1	-	4,174	6,537	8	40
Ark.	33	41	718	532	-	-	1,184	860	-	1
La.	153	169	2,383	1,154	-	-	2,079	1,230	-	28
Okla.	52	47	1,712	1,039	1	-	911	824	-	-
Tex.	658	685	-	6,447	-	-	-	3,623	8	11
MOUNTAIN	205	314	3,568	4,260	12	5	1,349	1,481	131	57
Mont.	9	8	175	126	-	-	8	9	4	3
Idaho	5	4	352	297	2	-	30	21	33	12
Wyo.	-	5	157	91	-	-	9	10	60	19
Colo.	39	96	-	408	2	1	516	399	7	7
N. Mex.	38	26	819	797	3	2	151	283	12	8
Ariz.	60	71	1,710	1,758	N	2	562	578	-	5
Utah	26	23	215	248	3	-	25	33	8	1
Nev.	28	81	140	535	2	-	48	148	7	2
PACIFIC	1,161	1,843	10,705	13,595	36	9	2,520	3,479	119	108
Wash.	77	92	2,152	1,742	10	3	369	423	2	5
Oreg.	31	74	456	902	9	2	78	128	1	1
Calif.	1,038	1,651	7,393	10,439	17	3	1,946	2,734	81	65
Alaska	-	16	368	261	-	-	56	113	1	-
Hawaii	15	10	336	251	N	1	71	81	34	37
Guam	-	-	8	65	N	-	2	9	-	-
P.R.	273	264	U	U	1	U	68	112	1	11
V.I.	8	11	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	7	7	-	2

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–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update February 22, 1998.

†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 March 14, 1998, and March 8, 1997 (10th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998*	Cum. 1997	Cum. 1998
UNITED STATES	165	165	575	600	167	243	1,188	1,697	893	2,446	1,135
NEW ENGLAND	7	12	65	118	5	7	13	27	36	59	210
Maine	-	1	-	-	-	-	-	-	U	5	28
N.H.	1	2	4	4	-	1	-	-	2	1	21
Vt.	-	2	-	2	-	-	-	-	1	-	5
Mass.	3	4	21	21	5	5	12	15	25	28	59
R.I.	3	-	13	12	-	1	-	-	8	5	18
Conn.	-	3	27	79	-	-	1	12	U	20	79
MID. ATLANTIC	35	30	378	400	50	59	45	74	75	349	291
Upstate N.Y.	10	6	200	31	18	5	2	12	U	40	187
N.Y. City	3	1	-	23	25	35	7	14	U	189	U
N.J.	-	5	-	102	-	15	10	33	75	79	41
Pa.	22	18	178	244	7	4	26	15	U	41	63
E.N. CENTRAL	46	64	19	4	9	23	183	156	48	311	8
Ohio	22	33	18	1	1	1	38	51	5	61	8
Ind.	4	6	1	2	1	2	39	36	U	23	-
Ill.	3	2	-	1	1	10	60	16	43	176	-
Mich.	14	20	-	-	6	8	38	22	U	33	-
Wis.	3	3	U	U	-	2	8	31	U	18	-
W.N. CENTRAL	13	12	4	1	3	3	20	35	32	64	85
Minn.	-	-	-	-	1	-	-	9	U	21	14
Iowa	-	-	4	-	1	1	-	1	U	8	22
Mo.	8	6	-	-	1	2	10	14	28	24	4
N. Dak.	-	-	-	-	-	-	-	-	U	2	22
S. Dak.	-	-	-	-	-	-	-	-	4	1	14
Nebr.	5	4	-	1	-	-	4	-	-	-	-
Kans.	-	2	-	-	-	-	6	11	U	8	9
S. ATLANTIC	36	19	83	56	48	50	516	666	182	355	437
Del.	4	2	-	10	1	2	5	3	-	7	-
Md.	7	10	75	37	18	18	117	193	44	31	107
D.C.	2	1	3	4	3	4	14	25	19	15	-
Va.	4	-	-	-	4	11	41	53	30	40	113
W. Va.	N	N	-	-	-	-	-	-	16	7	10
N.C.	4	3	-	2	5	2	150	132	73	53	103
S.C.	3	1	-	1	-	3	54	88	U	30	19
Ga.	-	-	2	1	10	8	87	124	U	60	36
Fla.	12	2	3	1	7	2	48	48	U	112	49
E.S. CENTRAL	2	7	9	14	4	5	230	376	-	181	35
Ky.	-	-	-	1	-	1	25	26	U	26	5
Tenn.	2	2	5	2	3	1	127	154	U	57	18
Ala.	-	2	4	-	1	1	54	95	U	73	12
Miss.	-	3	-	11	-	2	24	101	U	25	-
W.S. CENTRAL	-	1	-	1	3	3	111	268	12	370	35
Ark.	-	-	-	-	-	1	29	41	12	20	1
La.	-	-	-	-	3	2	72	100	-	14	-
Okla.	-	1	-	-	-	-	10	25	U	31	34
Tex.	-	-	-	1	-	-	-	102	U	305	-
MOUNTAIN	11	12	1	-	12	13	40	34	42	67	17
Mont.	1	-	-	-	-	1	-	-	2	2	5
Idaho	-	-	-	-	1	-	-	-	1	-	-
Wyo.	-	1	-	-	-	1	-	-	1	1	12
Colo.	4	3	-	-	4	6	3	-	U	10	-
N. Mex.	1	-	-	-	4	2	-	-	7	2	-
Ariz.	-	3	-	-	2	-	34	29	23	32	-
Utah	4	4	-	-	1	-	2	1	8	1	-
Nev.	1	1	1	-	-	3	1	4	U	19	-
PACIFIC	15	8	16	6	33	80	30	61	466	690	17
Wash.	-	1	-	-	-	-	4	3	U	47	-
Oreg.	-	-	-	2	6	4	1	1	U	22	-
Calif.	15	6	16	4	27	76	25	57	439	566	11
Alaska	-	-	-	-	-	-	-	-	8	19	6
Hawaii	-	1	-	-	-	-	-	-	19	36	-
Guam	-	-	-	-	-	-	-	2	-	11	-
P.R.	-	-	-	-	-	2	56	43	-	-	15
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	1	1	8	-	-

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

*Additional information about areas displaying "U" (e.g., Tuberculosis) can be found in Notices to Readers, *MMWR* Vol. 47, No. 2, p. 39.

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending March 14, 1998, and March 8, 1997 (10th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	1998	Cum. 1998	1998	Cum. 1998	Cum. 1998	Cum. 1997
UNITED STATES	193	223	3,069	4,794	1,138	1,469	-	1	2	5	6	13
NEW ENGLAND	9	13	65	106	9	36	-	-	-	1	1	-
Maine	-	2	9	3	-	2	-	-	-	-	-	-
N.H.	1	2	4	6	3	2	-	-	-	-	-	-
Vt.	-	-	4	4	-	1	-	-	-	-	-	-
Mass.	8	8	11	57	4	21	-	-	-	1	1	-
R.I.	-	1	5	4	2	2	-	-	-	-	-	-
Conn.	-	-	32	32	-	8	-	-	-	-	-	-
MID. ATLANTIC	29	32	150	411	156	255	-	-	-	-	-	5
Upstate N.Y.	12	1	62	17	55	33	-	-	-	-	-	3
N.Y. City	5	14	38	225	35	108	-	-	-	-	-	1
N.J.	12	11	2	65	-	53	-	-	-	-	-	1
Pa.	-	6	48	104	66	61	-	-	-	-	-	-
E.N. CENTRAL	31	38	448	538	141	246	-	-	-	1	1	2
Ohio	17	18	80	95	16	18	-	-	-	-	-	-
Ind.	2	4	53	54	13	25	-	-	-	-	-	-
Ill.	11	11	46	189	10	73	-	-	-	-	-	1
Mich.	-	4	251	158	98	113	-	-	-	1	1	1
Wis.	1	1	18	42	4	17	-	-	-	-	-	-
W.N. CENTRAL	-	5	301	331	68	105	-	-	-	-	-	-
Minn.	-	2	5	1	2	-	-	-	-	-	-	-
Iowa	-	1	130	42	11	6	-	-	-	-	-	-
Mo.	-	2	145	210	49	88	U	-	U	-	-	-
N. Dak.	-	-	1	3	1	-	-	-	-	-	-	-
S. Dak.	-	-	1	5	1	-	-	-	-	-	-	-
Nebr.	-	-	8	14	2	4	-	-	-	-	-	-
Kans.	-	-	11	56	2	7	U	-	U	-	-	-
S. ATLANTIC	60	36	338	299	189	154	-	1	2	3	4	-
Del.	-	-	-	7	-	1	-	-	-	-	-	-
Md.	13	15	77	84	26	33	-	-	-	1	1	-
D.C.	-	-	11	9	3	13	-	-	-	-	-	-
Va.	6	2	42	33	16	16	-	-	2	2	2	-
W. Va.	1	2	-	3	1	4	-	-	-	-	-	-
N.C.	7	7	18	47	49	33	-	-	-	-	-	-
S.C.	-	3	7	18	-	8	-	-	-	-	-	-
Ga.	15	4	82	36	43	12	-	-	-	-	-	-
Fla.	18	3	101	62	51	34	-	1	-	-	1	-
E.S. CENTRAL	7	14	84	124	87	115	-	-	-	-	-	1
Ky.	-	1	-	22	-	6	-	-	-	-	-	-
Tenn.	7	8	56	54	69	73	-	-	-	-	-	-
Ala.	-	5	28	29	18	15	-	-	-	-	-	1
Miss.	-	-	-	19	-	21	U	-	U	-	-	-
W.S. CENTRAL	11	9	201	672	64	76	-	-	-	-	-	-
Ark.	-	1	9	42	15	11	-	-	-	-	-	-
La.	5	1	4	25	4	9	-	-	-	-	-	-
Okla.	5	6	90	310	7	4	-	-	-	-	-	-
Tex.	1	1	98	295	38	52	-	-	-	-	-	-
MOUNTAIN	31	24	642	776	148	162	-	-	-	-	-	-
Mont.	-	-	6	30	1	1	-	-	-	-	-	-
Idaho	-	-	43	38	4	6	-	-	-	-	-	-
Wyo.	-	-	12	8	2	5	-	-	-	-	-	-
Colo.	5	5	52	95	17	39	-	-	-	-	-	-
N. Mex.	-	1	38	60	54	55	-	-	-	-	-	-
Ariz.	20	9	416	299	39	29	-	-	-	-	-	-
Utah	2	2	37	181	16	15	-	-	-	-	-	-
Nev.	4	7	38	65	15	12	-	-	-	-	-	-
PACIFIC	15	52	840	1,537	276	320	-	-	-	-	-	5
Wash.	1	-	100	94	21	10	-	-	-	-	-	-
Oreg.	12	8	62	86	21	24	-	-	-	-	-	-
Calif.	-	41	670	1,314	229	277	-	-	-	-	-	2
Alaska	1	1	1	8	2	5	-	-	-	-	-	-
Hawaii	1	2	7	35	3	4	-	-	-	-	-	3
Guam	-	-	-	-	-	1	U	-	U	-	-	-
P.R.	-	-	3	59	90	181	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	-	2	-	1	7	11	U	-	U	-	-	1

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

*Of 41 cases among children aged <5 years, serotype was reported for 13 and of those, 6 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 March 14, 1998, and March 8, 1997 (10th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997
UNITED STATES	607	834	10	73	98	45	619	881	2	57	6
NEW ENGLAND	37	53	-	-	3	7	130	282	-	9	-
Maine	3	5	-	-	-	-	4	6	-	-	-
N.H.	1	5	-	-	-	1	12	34	-	-	-
Vt.	1	2	-	-	-	-	19	91	-	-	-
Mass.	16	34	-	-	1	6	92	141	-	-	-
R.I.	3	1	-	-	1	-	-	9	-	-	-
Conn.	13	6	-	-	1	-	3	1	-	9	-
MID. ATLANTIC	42	71	-	2	12	7	54	56	2	39	2
Upstate N.Y.	16	14	-	2	2	7	54	23	2	39	-
N.Y. City	7	15	-	-	1	-	-	15	-	-	2
N.J.	19	15	-	-	2	-	-	5	-	-	-
Pa.	-	27	-	-	7	-	-	13	-	-	-
E.N. CENTRAL	103	104	1	10	10	4	62	94	-	-	3
Ohio	47	39	1	7	3	2	33	42	-	-	-
Ind.	18	10	-	-	2	-	4	2	-	-	-
Ill.	17	34	-	-	2	2	3	12	-	-	-
Mich.	12	8	-	3	2	-	14	18	-	-	-
Wis.	9	13	-	-	1	-	8	20	-	-	3
W.N. CENTRAL	42	66	2	7	4	2	46	38	-	-	-
Minn.	-	2	-	4	2	-	28	25	-	-	-
Iowa	8	12	1	2	2	2	11	6	-	-	-
Mo.	21	37	U	-	-	U	5	-	U	-	-
N. Dak.	-	-	1	1	-	-	-	1	-	-	-
S. Dak.	4	3	-	-	-	-	-	1	-	-	-
Nebr.	1	3	-	-	-	-	2	2	-	-	-
Kans.	8	9	U	-	-	U	-	3	U	-	-
S. ATLANTIC	127	155	-	15	11	1	56	83	-	2	-
Del.	1	3	-	-	-	-	-	-	-	-	-
Md.	14	18	-	2	-	-	9	47	-	-	-
D.C.	-	4	-	-	-	-	-	2	-	-	-
Va.	12	9	-	2	1	-	-	13	-	-	-
W. Va.	3	5	-	-	-	-	-	3	-	-	-
N.C.	18	31	-	5	4	-	30	10	-	1	-
S.C.	13	31	-	3	1	-	5	4	-	1	-
Ga.	35	21	-	-	2	-	-	2	-	-	-
Fla.	31	33	-	3	3	1	12	2	-	-	-
E.S. CENTRAL	22	68	-	-	8	-	13	25	-	-	-
Ky.	-	14	-	-	-	-	-	8	-	-	-
Tenn.	22	25	-	-	3	-	4	5	-	-	-
Ala.	-	22	-	-	2	-	9	7	-	-	-
Miss.	-	7	U	-	3	U	-	5	U	-	-
W.S. CENTRAL	35	59	3	14	8	1	19	13	-	2	-
Ark.	7	12	-	-	-	1	9	2	-	-	-
La.	12	13	-	-	-	-	-	2	-	-	-
Okla.	16	8	-	-	-	-	-	-	-	-	-
Tex.	-	26	3	14	8	-	10	9	-	2	-
MOUNTAIN	45	51	-	4	6	16	176	160	-	5	-
Mont.	2	4	-	-	-	-	1	-	-	-	-
Idaho	2	4	-	-	1	7	100	92	-	-	-
Wyo.	3	-	-	1	-	-	-	3	-	-	-
Colo.	11	8	-	-	2	3	17	50	-	-	-
N. Mex.	7	11	N	N	N	2	41	8	-	1	-
Ariz.	17	12	-	1	-	3	9	6	-	1	-
Utah	2	6	-	-	1	-	5	-	-	2	-
Nev.	1	6	-	2	2	1	3	1	-	1	-
PACIFIC	154	207	4	21	36	7	63	130	-	-	1
Wash.	20	18	1	2	3	7	54	42	-	-	-
Oreg.	32	51	N	N	N	-	8	4	-	-	-
Calif.	99	136	2	11	27	-	-	78	-	-	1
Alaska	1	-	-	2	1	-	-	2	-	-	-
Hawaii	2	2	1	6	5	-	1	4	-	-	-
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	-	4	-	-	3	-	-	-	-	-	-
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 March 14, 1998 (10th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	564	408	94	37	14	11	56
Boston, Mass.	152	94	34	11	8	5	16
Bridgeport, Conn.	34	26	6	2	-	-	4
Cambridge, Mass.	9	9	-	-	-	-	1
Fall River, Mass.	21	17	1	3	-	-	-
Hartford, Conn.	48	38	7	1	1	1	-
Lowell, Mass.	24	17	6	1	-	-	3
Lynn, Mass.	14	7	5	2	-	-	1
New Bedford, Mass.	25	22	2	1	-	-	2
New Haven, Conn.	35	25	4	3	1	2	6
Providence, R.I.	70	50	11	6	2	1	5
Somerville, Mass.	6	5	-	-	1	-	-
Springfield, Mass.	39	28	7	1	1	2	6
Waterbury, Conn.	32	25	5	2	-	-	3
Worcester, Mass.	55	45	6	4	-	-	9
MID. ATLANTIC	2,231	1,606	394	162	29	40	154
Albany, N.Y.	40	35	2	3	-	-	3
Allentown, Pa.	27	20	5	2	-	-	2
Buffalo, N.Y.	80	61	10	5	1	3	5
Camden, N.J.	46	30	5	6	-	5	2
Elizabeth, N.J.	24	19	4	1	-	-	-
Erie, Pa.	41	35	5	1	-	-	3
Jersey City, N.J.	40	29	6	3	1	1	4
New York City, N.Y.	1,126	796	219	82	10	19	61
Newark, N.J.	58	31	14	11	1	1	4
Paterson, N.J.	21	14	3	3	1	-	-
Philadelphia, Pa.	300	210	55	23	7	5	21
Pittsburgh, Pa.§	52	35	13	3	1	-	5
Reading, Pa.	31	21	5	2	2	1	3
Rochester, N.Y.	150	118	19	8	3	2	17
Schenectady, N.Y.	20	15	5	-	-	-	1
Scranton, Pa.	28	25	2	1	-	-	1
Syracuse, N.Y.	104	76	18	6	2	2	18
Trenton, N.J.	28	22	4	1	-	1	4
Utica, N.Y.	15	14	-	1	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,328	1,644	409	160	54	59	160
Akron, Ohio	64	43	15	2	1	3	-
Canton, Ohio	36	30	3	2	1	-	2
Chicago, Ill.	499	336	76	46	24	16	42
Cincinnati, Ohio	138	96	27	10	-	5	17
Cleveland, Ohio	169	114	33	12	4	6	8
Columbus, Ohio	199	141	37	11	4	6	18
Dayton, Ohio	114	81	26	4	1	2	6
Detroit, Mich.	243	149	55	34	3	2	14
Evansville, Ind.	35	24	9	1	1	-	2
Fort Wayne, Ind.	69	52	14	2	1	-	6
Gary, Ind.	20	13	6	1	-	-	-
Grand Rapids, Mich.	71	51	12	3	5	-	3
Indianapolis, Ind.	200	139	27	21	3	10	-
Lansing, Mich.	45	36	7	2	-	-	6
Milwaukee, Wis.	110	82	20	3	2	3	13
Peoria, Ill.	38	29	4	1	-	4	7
Rockford, Ill.	42	36	3	-	2	1	3
South Bend, Ind.	61	48	8	3	-	1	1
Toledo, Ohio	117	97	17	1	2	-	9
Youngstown, Ohio	58	47	10	1	-	-	3
W.N. CENTRAL	776	579	126	44	11	16	60
Des Moines, Iowa	139	104	22	7	3	3	20
Duluth, Minn.	21	14	4	2	-	1	1
Kansas City, Kans.	37	18	9	7	1	2	1
Kansas City, Mo.	86	64	13	8	-	1	5
Lincoln, Nebr.	29	21	5	1	2	-	3
Minneapolis, Minn.	172	132	31	5	1	3	16
Omaha, Nebr.	67	54	9	3	-	1	5
St. Louis, Mo.	68	46	15	2	3	2	-
St. Paul, Minn.	76	61	9	5	1	-	5
Wichita, Kans.	81	65	9	4	-	3	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,221	811	234	119	27	28	49
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	259	159	55	28	9	7	22
Charlotte, N.C.	124	82	25	10	2	5	5
Jacksonville, Fla.	163	112	28	19	2	2	4
Miami, Fla.	116	77	22	13	1	2	-
Norfolk, Va.	80	49	16	10	1	4	1
Richmond, Va.	84	61	19	4	-	-	-
Savannah, Ga.	55	30	17	6	2	-	1
St. Petersburg, Fla.	39	30	3	3	2	1	2
Tampa, Fla.	210	144	35	19	7	5	12
Washington, D.C.	73	50	13	7	1	2	2
Wilmington, Del.	18	17	1	-	-	-	-
E.S. CENTRAL	1,032	712	210	66	18	24	87
Birmingham, Ala.	223	162	36	14	5	5	25
Chattanooga, Tenn.	85	70	13	2	-	-	8
Knoxville, Tenn.	90	63	21	6	-	-	11
Lexington, Ky.	63	43	12	5	-	3	3
Memphis, Tenn.	244	153	55	18	8	10	16
Mobile, Ala.	97	65	21	9	2	-	2
Montgomery, Ala.	69	45	15	6	2	1	11
Nashville, Tenn.	161	111	37	6	1	5	11
W.S. CENTRAL	1,659	1,075	364	142	34	30	108
Austin, Tex.	107	70	23	8	2	4	6
Baton Rouge, La.	50	34	10	4	1	1	2
Corpus Christi, Tex.	48	33	9	5	-	1	2
Dallas, Tex.	191	129	40	11	9	2	10
El Paso, Tex.	81	47	12	6	1	1	3
Ft. Worth, Tex.	106	76	22	5	-	3	5
Houston, Tex.	448	252	128	48	10	10	32
Little Rock, Ark.	86	58	18	8	1	1	7
New Orleans, La.	107	64	30	10	3	-	-
San Antonio, Tex.	240	167	42	23	4	4	17
Shreveport, La.	76	58	11	3	2	2	10
Tulsa, Okla.	119	87	19	11	1	1	14
MOUNTAIN	873	604	144	70	28	27	90
Albuquerque, N.M.	89	62	13	6	3	5	1
Boise, Idaho	52	43	6	3	-	-	6
Colo. Springs, Colo.	51	39	9	2	-	1	6
Denver, Colo.	U	U	U	U	U	U	U
Las Vegas, Nev.	213	148	42	14	5	4	18
Ogden, Utah	21	13	4	3	-	1	3
Phoenix, Ariz.	166	106	33	15	8	4	19
Pueblo, Colo.	21	16	4	1	-	-	5
Salt Lake City, Utah	131	89	15	14	8	5	15
Tucson, Ariz.	129	88	18	12	4	7	17
PACIFIC	2,163	1,593	330	150	52	37	243
Berkeley, Calif.	15	10	1	1	1	2	2
Fresno, Calif.	140	96	18	10	6	10	10
Glendale, Calif.	39	31	3	4	-	1	7
Honolulu, Hawaii	82	62	9	6	2	3	3
Long Beach, Calif.	51	40	7	2	1	1	10
Los Angeles, Calif.	717	533	113	49	17	5	89
Pasadena, Calif.	21	13	4	1	-	3	1
Portland, Oreg.	149	112	27	7	2	1	12
Sacramento, Calif.	205	143	38	11	9	3	33
San Diego, Calif.	162	116	30	12	2	2	21
San Francisco, Calif.	103	72	9	15	4	3	16
San Jose, Calif.	151	112	24	12	3	-	13
Santa Cruz, Calif.	41	29	9	3	-	-	5
Seattle, Wash.	133	100	19	10	2	2	1
Spokane, Wash.	56	48	5	3	-	-	10
Tacoma, Wash.	98	76	14	4	3	1	10
TOTAL	12,847¶	9,032	2,305	950	267	272	1,007

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 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.

Contributors to the Production of the *MMWR* (Weekly)

Weekly Notifiable Disease Morbidity Data and 122 Cities Mortality Data

Samuel L. Groseclose, D.V.M., M.P.H.

State Support Team

Robert Fagan
Karl A. Brendel
Siobhan Gilchrist, M.P.H.
Harry Holden
Gerald Jones
Felicia Perry
Carol A. Worsham

CDC Operations Team

Carol M. Knowles
Deborah A. Adams
Willie J. Anderson
Christine R. Burgess
Patsy A. Hall
Myra A. Montalbano
Angela Trosclair, M.S.

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 (888) 232-3228.

☆**U.S. Government Printing Office: 1998-633-228/67062 Region IV**