CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

March 6, 1998 / Vol. 47 / No. 8

MMWR™
MORBIDITY AND MORTALITY WEEKLY REPORT

Tetanus Among Injecting-Drug Users — California, 1997

During 1997, 47 cases of tetanus were provisionally reported in the United States; 11 of these were reported from California. Of these 11, six (55%) occurred among injecting-drug users (IDUs). The substantial proportion of cases among IDUs prompted a review of reported tetanus cases in California. This report summarizes reported cases of tetanus in IDUs in California during 1987–1997 and presents two case reports for 1997.

Summary of Cases

The annual number of tetanus cases in IDUs in California has increased steadily from one in 1987 to six in 1997. Of 67 cases of tetanus reported in California during 1987–1997, a total of 27 (40%) occurred in IDUs. Of these IDUs, 24 (89%) were Hispanic. Of the 27 cases of tetanus in IDUs, 24 (89%) had no antecedent injuries other than drug injection. Abscesses were observed at injection sites for 18 (69%) patients. Information about injecting technique was provided for 14 patients, all of whom reported subcutaneous injection (i.e., "skin popping"). All 10 patients for whom the specific drug injected was reported had used heroin, either exclusively or with other drugs.

Case Reports

Case 1. In June 1997, the California Department of Health Services received a report of tetanus in a 59-year-old Hispanic woman who had injected heroin intermittently throughout her life. She had resumed daily heroin injection 2 years before onset of disease. On June 18, she sought treatment for opisthotonos at a local emergency department. Tetanus was diagnosed, and she was hospitalized that day. She had multiple abscesses at injection sites on her arms and feet. Despite mechanical ventilation and treatment with tetanus immune globulin (TIG), she died on June 23. Her tetanus vaccination status was unknown. She had had access to sterile syringes, alcohol, and other supplies for injections because her husband was diabetic. Her family indicated she had used hygienic technique when injecting and had not shared injecting equipment.

Case 2. On July 17, 1997, a 45-year-old Hispanic man who had injected heroin subcutaneously five times a day sought treatment at a local emergency department because of respiratory failure and tremors. He reported having used diazepam in an

Tetanus Among Injecting-Drug Users — Continued

attempt at detoxification, and he was hospitalized that day with a diagnosis of drug withdrawal. He had persistent spasms, and tetanus was diagnosed on July 21. TIG was administered, and he was placed on mechanical ventilation. *Clostridium subterminale* and *Staphylococcus aureus* were cultured from a wound on his right arm. He was hospitalized for 13 weeks, including 4 weeks in a rehabilitation hospital, then released. His tetanus vaccination history was unknown.

Reported by: CD O'Malley, PhD, E White, R Schechter, MD, NJ Smith, MD, Immunization Br, Div of Communicable Disease Control; SH Waterman, MD, State Epidemiologist, California Dept of Health Svcs.

Editorial Note: When the anaerobe *C. tetani* colonizes devitalized tissue, the exotoxin tetanospasmin is disseminated to inhibitory motor neurons, resulting in tetanus. The spastic paralysis of tetanus can persist for several weeks. Predisposing wounds include open fractures, abrasions, abscesses, and punctures. The diagnosis is usually made clinically. Patients often require mechanical ventilation, and the case-fatality rate is 25% (*1*).

Tetanus among IDUs has been reported previously (*2,3*), and the Advisory Committee on Immunization Practices considers IDUs to be at high risk for tetanus (*4*). In California, subcutaneous injection of Mexican black tar heroin has been associated with a recent increase of wound botulism caused by infection with *C. botulinum* (*5*). The annual number of wound botulism cases reported in California increased from one in 1990 to 23 in 1995. During this period, all but one case occurred among IDUs. Both the spastic paralysis of tetanus and the flaccid paralysis of wound botulism are caused by ubiquitous anaerobic soil bacteria.

During 1987–1997, Hispanics constituted 60% of all patients with tetanus reported in California and 89% of IDU-associated cases. Mexican Americans are the predominant Hispanic population in California. A recent serologic survey indicated that 58% of Mexican Americans, compared with 73% of non-Hispanic whites, had protective levels of antibody to tetanus toxoid (*6*). This increased susceptibility may, in part, explain the disproportionate occurrence of tetanus among Hispanic IDUs.

Tetanus cases are reported to local and state health departments through a passive reporting system, and both cases and risk factors probably are underreported (*7*). Drug use preceding tetanus may be underestimated because of limited reporting by patients or clinicians.

Drug injection provides several potential sources for infection with *C. tetani*, including the drug, its adulterants, injection equipment, and unwashed skin. Although recommendations to prevent transmission of human immunodeficiency virus among IDUs (*8*) may limit infection from contaminated injection equipment, these measures may not be effective against spores inoculated from the skin or contained in the drug. Therefore, prevention efforts should emphasize vaccination for tetanus.

Tetanus is almost entirely preventable through vaccination and appropriate wound care, including administration of TIG when appropriate. A primary series of three doses of tetanus-diphtheria toxoid (Td) and subsequent booster doses of Td every 10 years are highly effective in preventing tetanus (*9*). IDUs have frequent contact with the medical system but poorer continuity of care (*10*); each clinical encounter should be used for assessment and, when needed, completion of tetanus vaccination.

Tetanus Among Injecting-Drug Users — Continued

References

1. Izurieta HS, Sutter RW, Strebel PM, et al. Tetanus surveillance—United States, 1991–1994. In: CDC surveillance summaries (February). MMWR 1997;46(no. SS-2):15–25.
2. Cherubin CE, Millian SJ, Palusci E, Fortunato M. Investigations in tetanus in narcotics addicts in New York City. Am J Epidemiol 1968;88:215–23.
3. Sangalli M, Chierchini P, Aylward RB, Forastiere F. Tetanus: a rare but preventable cause of mortality among drug users and the elderly. Eur J Epidemiol 1996;12:539–40.
4. CDC. Update on adult immunization. MMWR 1991;40(no. RR-12).
5. CDC. Wound botulism—California, 1995. MMWR 1995;44:889–92.
6. Gergen PJ, McQuillan GM, Kiely M, Ezzati-Rice TM, Sutter RW, Virella G. A population-based serologic survey of immunity to tetanus in the United States. N Engl J Med 1995;332:761–6.
7. Sutter RW, Cochi SL, Brink EW, Sirotkin BI. Assessment of vital statistics and surveillance data for monitoring tetanus mortality, United States, 1979–1984. Am J Epidemiol 1990;131: 132–42.
8. CDC. Publication of HIV-prevention bulletin for health-care providers regarding advice to persons who inject illicit drugs. MMWR 1997;46:510.
9. Edsall G. Specific prophylaxis of tetanus. JAMA 1959;171:121–35.
10. Cherubin CE, Sapira JD. The medical complications of drug addiction and the medical assessment of the intravenous drug user: 25 years later. Ann Intern Med 1993;119:1017–28.

Administration of Zidovudine During Late Pregnancy and Delivery to Prevent Perinatal HIV Transmission — Thailand, 1996–1998

Worldwide, approximately 500,000 infants are perinatally infected with human immunodeficiency virus (HIV) each year, most of whom are born in developing countries (*1*). In 1994, a clinical trial in the United States and France demonstrated that zidovudine (ZDV) administered orally five times a day to HIV-infected pregnant women starting at 14–34 weeks' gestation, intravenously during labor, and orally to their newborns for 6 weeks reduced the risk for perinatal HIV transmission by two thirds (*2*). In 1994, this regimen was recommended as standard care in the United States (*3*); however, because of its complexity and cost, this regimen has not been implemented in most developing countries, and no other intervention had been efficacious in reducing perinatal HIV transmission. In 1996, the Ministry of Public Health of Thailand and Mahidol University, in collaboration with CDC, initiated a randomized, placebo-controlled trial of a simpler and less expensive regimen of ZDV to prevent perinatal HIV transmission. This report describes preliminary trial results, which indicate that a short-term antenatal regimen of ZDV reduced the risk for perinatal HIV transmission by approximately half.

HIV-infected pregnant women gave written informed consent for participation and were randomly selected at each of two study hospitals in Bangkok to receive either ZDV or a placebo. The ZDV regimen consisted of 300 mg orally twice a day from 36 weeks' gestation until onset of labor and 300 mg every 3 hours from onset of labor until delivery. All women were provided infant formula and counseled not to breastfeed, consistent with national guidelines for HIV-infected women in Thailand. The planned sample size was 392 women, selected to provide 80% power to detect a 50% lower transmission rate in the ZDV group compared with a transmission rate of 24% in the placebo group. The study endpoint was the HIV-infection status of the infant at age 6 months, determined by results of polymerase chain reaction (PCR) testing for HIV DNA performed on blood specimens obtained at birth, 2 months, and 6 months.

Zidovudine to Prevent Perinatal HIV Transmission — Continued

The proportion of children found to be infected by age 6 months in each treatment group was estimated by using the Kaplan-Meier method. The null hypothesis of no treatment effect was tested by using a normally distributed Z statistic computed from these estimates. As a result of two interim evaluations of treatment efficacy for data and safety monitoring in July 1997 and January 1998, the critical value of the Z statistic for rejecting the null hypothesis of no treatment effect at the end of the study was 2.05. The trial protocol was approved by human subjects committees in Thailand and at CDC, and the conduct of the trials was monitored by a data and safety monitoring board at the U.S. National Institutes of Health, which included a senior health official from Thailand.

From May 23, 1996, through December 31, 1997, a total of 397 women were enrolled; four women were lost to follow-up before delivery, and 393 women delivered 395 live-born infants (Table 1). At enrollment, the median age was 24 years, and the median CD4+ cell count was 424 cells/μL. Fourteen percent of women had cesarean deliveries. The median duration of antenatal treatment was 25 days, and the median number of doses during labor was three. Of these enrollees, 99% took at least 90% of the prescribed doses of ZDV during the antepartum period, and 99% took at least one dose during labor; 96% of study visits were kept. Baseline and delivery characteristics, protocol adherence, and adverse event rates were similar in the two trial groups. No women breastfed their infants.

As of February 13, 1998, PCR data were available for 391 children (Table 1). Of these, 52 children have tested PCR positive (17 in the ZDV group and 35 in the placebo group), all by their 2-month visit. Of the remaining 339 children, 310 tested PCR negative at age ≥2 months, and 29 children tested PCR negative at birth but have not yet been evaluated further. The estimated HIV transmission risk for the ZDV and placebo groups were 9.2% (95% confidence interval [CI]=5.0%–13.5%) and 18.6% (95% CI=13.0%–24.0%), respectively, representing a 51% (95% CI=15%–71%) decrease in

TABLE 1. Study outcome of perinatal zidovudine (ZDV) trial, by treatment group — Bangkok, Thailand, 1998

Category	Treatment group	
	ZDV (n=198)	Placebo (n=199)
Median CD4+ count (cells/μL) at enrollment	428	410
No. women lost to follow-up before delivery	3	1
No. women who delivered infants	195	198
No. live-born children*	196	199
No. children with at least one polymerase chain reaction (PCR) result†	193	198
No. children with positive PCR	17	35
Risk for perinatal transmission *(95% confidence interval)*§	9.2% *(5.0%–13.5%)*	18.6% *(13.0%–24.0%)*
No. children died	3	4

*Includes one set of twins in each treatment group.
†Excludes one child from each set of twins. In addition, one child died without a PCR result, and one child's first result is pending.
§Estimated using the Kaplan-Meier method.

Zidovudine to Prevent Perinatal HIV Transmission — Continued

transmission risk. On the basis of these data, the Z statistic for testing for a difference between the groups was 2.67 (p=0.008). Assuming that all infected children will be detected by their 2-month visit and that the transmission risk among the children whose infection status is pending is as high as 24%, the probability is >98% that the null hypothesis of no treatment effect will be rejected when all results are available.

Reported by: P Vuthipongse, MD, Ministry of Public Health; C Bhadrakom, MD, P Chaisilwattana, MD, A Roongpisuthipong, MD, A Chalermchokcharoenkit, MD, Dept of OB/GYN; S Chearskul, MD, N Wanprapa, MD, K Chokephaibulkit, MD, M Tuchinda, MD, Dept of Pediatrics; C Wasi, MD, R Chuachoowong, MD, Dept of Microbiology, Siriraj Hospital, Mahidol Univ; W Siriwasin, MD, P Chinayon, MD, S Asavapiriyanont, MD, Dept of OB/GYN, Rajavithi Hospital; T Chotpitayasunondh, MD, N Waranawat, MD, V Sangtaweesin, MD, S Horpaopan, MD, Queen Sirikit National Institute for Child Health, Bangkok; The HIV/AIDS Collaboration, Nonthaburi, Thailand. Div of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD and TB Prevention, CDC.

Editorial Note: This report is the first to describe the efficacy of a short-term regimen of an antiretroviral drug for preventing perinatal HIV transmission. The regimen studied in this trial is more feasible for implementation in Thailand and other developing countries than the regimen now used in the United States (*3*) because it is less expensive (i.e., $50 versus $800) and logistically simpler (i.e., later start in pregnancy, shorter duration, less frequent dosing, oral labor dosing, and no infant treatment). If implemented, thousands of perinatal HIV infections annually could be prevented in Thailand, where an estimated 20,000 HIV-infected women deliver infants each year.

Although this trial was not designed to compare the short-term ZDV regimen to the longer regimen (*2*), the decrease in transmission rate (51%) using the shorter regimen is less than the 66% decrease with the longer regimen. The smaller treatment effect could result from the shorter duration of treatment, oral rather than intravenous administration during labor, lack of treatment for the infant, different study populations, random variation, or a combination of these factors. However, this clinical trial demonstrates that a shorter regimen of ZDV given only during pregnancy can substantially reduce perinatal transmission.

Reasons are unknown for the lower transmission rate in the placebo group (18.6%) than in untreated women (24.2%) studied in the same hospitals during 1993–1994 (*4*). The lower than expected background transmission rate highlights the importance of having included a randomized, concurrently enrolled, untreated control group. Had the test regimen been inactive, a transmission rate of 18.6% may have suggested some efficacy when compared with historical data.

CDC has sponsored another placebo-controlled trial of the same regimen of ZDV in collaboration with the Ministry of Public Health in Côte d'Ivoire in west Africa, where most HIV-infected women breastfeed their infants. Because the trial in Thailand demonstrated that the short-term regimen is efficacious in reducing transmission around the time of birth, and because preliminary data from the trial in Côte d'Ivoire have shown the regimen to be safe in this population, enrollment in the placebo group of the Côte d'Ivoire trial has been stopped. All women enrolled in the study are being offered the short-term ZDV regimen. Because breastfeeding is associated with postnatal HIV transmission from mothers to infants (*5*), follow-up of enrolled infants will continue to determine whether the short-term ZDV regimen results in an overall lower risk for mother-infant HIV transmission in populations where HIV-infected women routinely breastfeed.

Zidovudine to Prevent Perinatal HIV Transmission — Continued

To implement these findings, ministries of health, donor agencies, and other international agencies should develop policies and practices to strengthen access to prenatal care, testing and counseling for HIV infection, and provision of ZDV for HIV-infected pregnant women. Operational research is needed to optimize provision of this intervention to HIV-infected women in resource-poor settings. Further evaluation is needed of the effect of breastfeeding on the efficacy of this regimen.

References

1. World Health Organization. Global AIDS surveillance—part I. Wkly Epidemiol Rec 1997;72: 357–60.
2. Sperling RS, Shapiro DE, Coombs RW, et al. Maternal viral load, zidovudine treatment, and the risk of transmission of human immunodeficiency virus type 1 from mother to infant. N Engl J Med 1996;335:1621–9.
3. CDC. Recommendations of the U.S. Public Health Service Task Force on the Use of Zidovudine to Reduce Perinatal Transmission of Human Immunodeficiency Virus. MMWR 1994;43 (no. RR-11).
4. Shaffer N, Bhiraleus P, Chinayon P, et al. High viral load predicts perinatal HIV-1 subtype E transmission, Bangkok, Thailand [Abstract]. Vancouver, Canada: XIth International Conference on AIDS, July 1996.
5. Bertolli J, St. Louis ME, Simonds RJ, et al. Estimating the timing of mother-to-child transmission of human immunodeficiency virus in a breast-feeding population in Kinshasa, Zaire. J Infect Dis 1996;174:722–6.

HIV/AIDS Among American Indians and Alaskan Natives — United States, 1981–1997

A total of 641,086 cases of acquired immunodeficiency syndrome (AIDS) had been reported to CDC through December 1997. Of these, 1783 (0.3%) occurred in American Indians and Alaskan Natives (AI/ANs). AI/ANs represent <1% of the total U.S. population (272 million persons) and are characteristically diverse, comprising many tribes—of which 557 are federally recognized (*1*). Each tribe has its own traditions and culture.

This report* 1) describes characteristics of AI/ANs with AIDS reported to CDC through 1997; 2) summarizes trends in AIDS incidence among AI/ANs from 1986 to 1996; and 3) for the 25 states in which surveillance was conducted during 1994–1997 for human immunodeficiency virus (HIV) and AIDS, compares the characteristics of AI/ANs who had reported HIV infection (without AIDS) with those of AI/ANs who had AIDS. These findings, which highlight the characteristics of AI/ANs for whom HIV or AIDS had been diagnosed, can assist in the development of targeted prevention strategies.

Trends in AIDS incidence among AI/ANs aged ≥13 years were evaluated using estimated incidence of AIDS-opportunistic illness (AIDS-OI) adjusted for reporting delays, unreported risk/exposure, and changes in 1993 in the AIDS case definition for persons aged ≥13 years (*2*). Trends in estimated incidence of AIDS-OI were analyzed by 6-month interval of diagnosis for January 1986–December 1996 (i.e., the most recent date for which AIDS-OI incidence could be estimated reliably). Estimated AIDS-OI incidence rates per 100,000 population by sex, race/ethnicity, and year of diagnosis were

*Single copies of this report will be available until March 6, 1999, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 519-0459.

calculated using Bureau of Census population estimates for 1986–1996 (*3,4*). For the 25 states in which HIV case surveillance was conducted during 1994–1997 (i.e., the years for which comparable data were available by sex, age, and HIV-exposure mode), characteristics of AI/ANs who had HIV (without AIDS) were compared with those who had AIDS.

Characteristics of AI/ANs Who Had AIDS

Of the cumulative total of 1783 AI/ANs reported with AIDS to CDC through December 1997, 1756 (98%) were aged ≥13 years (Table 1). Compared with the total number of persons with reported cases of AIDS in the United States, a higher percentage of AI/ANs with AIDS were aged 20–29 years (23% versus 17%, respectively), and a lower percentage were aged 40–49 years (21% versus 25%). More than half (53%) of AI/ANs with AIDS resided in five states at the time of their AIDS diagnosis: California (25%), Oklahoma (11%), Washington (7%), Arizona (6%), and Alaska (4%). The five metropolitan statistical areas with the highest percentages of AI/ANs with AIDS were San Francisco, California (6%); Los Angeles-Long Beach, California (6%); Seattle-Bellevue-Everett, Washington (4%); Tulsa, Oklahoma (4%); and San Diego, California (3%). Compared with all persons who have AIDS, a lower proportion of AI/ANs resided in metropolitan areas with populations >1,000,000 (56% versus 77%, respectively), and a higher proportion resided in rural areas with populations <50,000 (19% versus 6%, respectively).

The risk/exposure group characteristics of AI/ANs were similar to those of all persons with AIDS in the United States; the most frequently reported mode of HIV exposure was men who have sex with men (MSM) for 49% of AI/ANs with AIDS and for 48% of all AIDS patients (Table 1). However, a larger percentage of AIDS cases in AI/ANs were associated with MSM who also were injecting-drug users (IDUs) (MSM/IDUs) in comparison with AIDS cases in all patients (14% versus 6%). A smaller percentage of AIDS cases in AI/ANs were associated with only injecting-drug use in comparison with AIDS cases in all patients (20% versus 25%).

Trends in AIDS-OI Incidence

The estimated number of AIDS-OI cases among AI/ANs aged ≥13 years increased steadily from 1986 (30 cases) through 1994 (200 cases), then stabilized during 1995–1996 (Figure 1). In 1996, the estimated AIDS-OI incidence rate was 10 cases per 100,000 population for AI/ANs; this rate was similar to the rate for non-Hispanic whites (11 per 100,000). The rate was seven times higher for non-Hispanic blacks (76 per 100,000) and three times higher for Hispanics (34 per 100,000) than for AI/ANs.

As in other racial/ethnic groups, estimated AIDS-OI incidence rates per 100,000 population for AI/ANs increased during the surveillance period and differed substantially by sex (Figure 2). In 1996, the rate was four times higher for men (22 per 100,000) than for women (five per 100,000). Rates for men decreased slightly from 1994 to 1996 (from 25 to 22 per 100,000). Among men, the proportion of AIDS-OI cases by risk/exposure category was stable during 1994–1996: for MSM, the range was 53%–58%; for IDUs, 16%–19%; and for MSM/IDUs, 14%–20%. Among women, the number of AIDS-OI cases each year was small, although the proportion of cases that occurred in women and were attributed to heterosexual contact increased slightly.

HIV/AIDS Among American Indians and Alaskan Natives — Continued

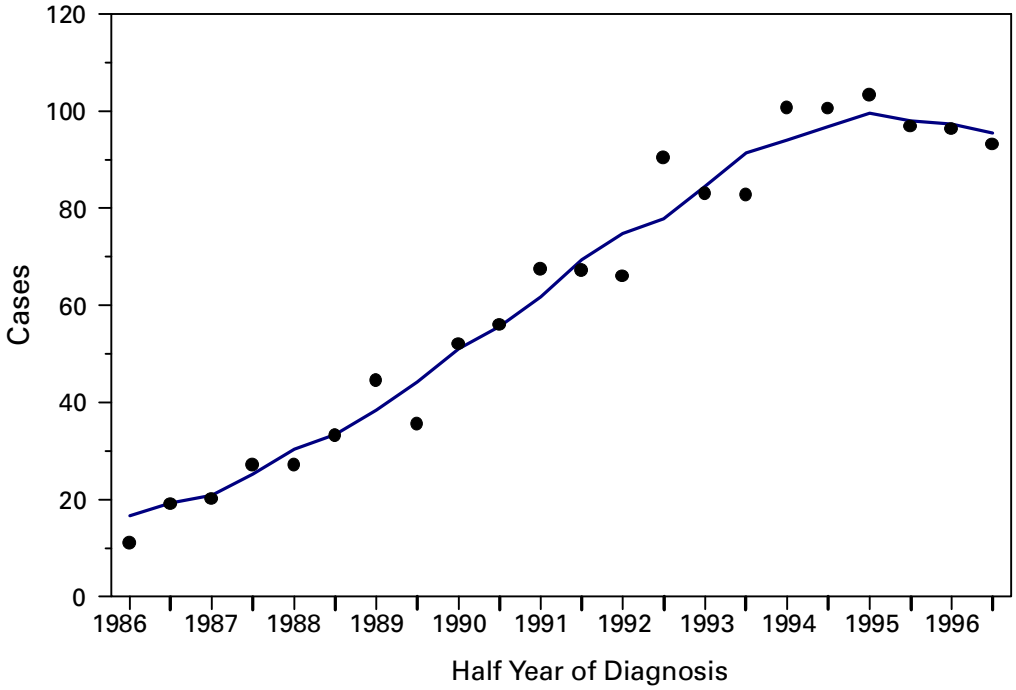
TABLE 1. Reported percentage* of American Indians and Alaskan Natives (AI/ANs) and of all persons who had AIDS, by selected characteristics — United States, cases reported through December 1997

Characteristic	% of AI/ANs with AIDS			% of all persons with AIDS		
	Male (N=1,491)	Female (N=292)	Total (N=1,783)	Male (N=538,703)	Female (N=102,383)	Total (N=641,086)
Age group (yrs)†						
<13	1	4	2	1	4	1
13–19	1	<1	1	<1	1	<1
20–29	23	24	23	17	22	17
30–39	48	44	48	45	44	45
40–49	21	18	21	26	21	25
50–59	4	7	4	8	6	7
≥60	1	2	2	3	3	3
Region§						
Northeast	8	10	8	29	44	31
Midwest	12	21	13	9	7	10
South	25	22	25	34	35	34
West	55	47	54	24	9	22
U.S. territories	0	0	0	3	5	3
HIV-exposure category						
Men who have sex with men	58	—	49	57	—	48
Injecting-drug use	15	44	20	22	42	25
Men who have sex with men and inject drugs	16	—	14	8	—	6
Hemophilia/ Coagulation disorder	2	<1	1	1	<1	1
Heterosexual contact	2	36	8	4	38	9
Receipt of blood or blood products	1	5	1	1	3	1
Mother who had or was at risk for HIV infection	1	5	1	1	4	1
Risk not reported or not identified	5	11	6	7	13	8
Population of metropolitan statistical area						
>1,000,000	56	56	56	77	76	77
500,000–999,999	12	12	12	7	8	7
50,000–499,999	13	9	12	10	10	10
<50,000	18	23	19	6	6	6
Unknown	1	<1	1	<1	<1	<1

*Percentages may not add to 100% because of rounding.
†Age at time of diagnosis.
§*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. For all persons with AIDS, region was unknown for 336 males and 49 females.

HIV/AIDS Among American Indians and Alaskan Natives — Continued

FIGURE 1. Estimated incidence of AIDS-opportunistic illness among American Indians and Alaskan Natives aged ≥13 years, adjusted for delays in reporting, by half year of diagnosis — United States, 1986–1996*



*Points represent incidence at 6-month intervals (i.e., January–June and July–December); the solid line represents "smoothed" incidence.

Comparison of AI/ANs Who Had HIV Infection (Without AIDS) with AI/ANs Who Had AIDS

During 1994–1997, 25 states that conducted surveillance for both HIV and AIDS reported 267 cases of HIV (without AIDS) and 327 cases of AIDS in AI/ANs aged ≥13 years (Table 2). The percentage distribution of selected characteristics of AI/ANs who had HIV (without AIDS) was compared with the percentage of AI/ANs who had AIDS. A higher percentage of HIV (without AIDS) cases occurred in women (33% versus 21%); in adolescents (5% versus 1%); and in persons aged 20–29 years (40% versus 21%). A higher percentage of AIDS cases occurred in MSM (41% of AIDS cases versus 30% of HIV [without AIDS] cases), and a lower percentage occurred in persons whose exposure category was heterosexual contact (13% of AIDS cases versus 18% of HIV [without AIDS] cases). The risk/exposure was not reported for 20% of AI/ANs who had HIV (without AIDS) and 12% of AI/ANs who had AIDS.

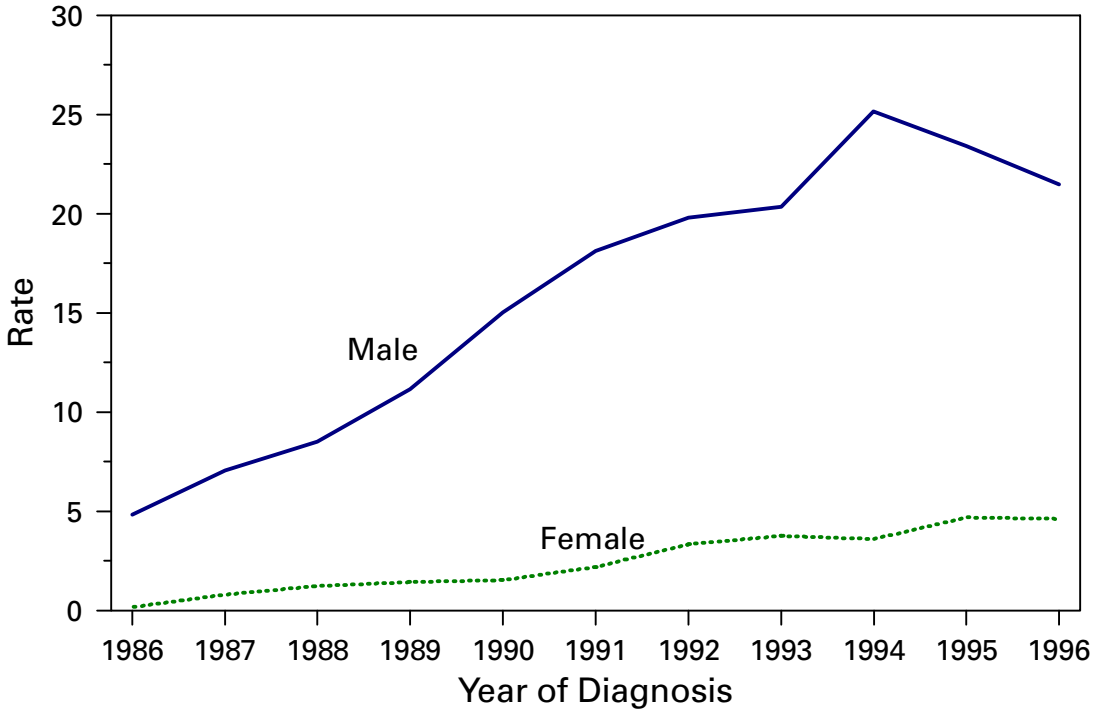
The percentage of patients for whom HIV infection was diagnosed in a hospital setting was similar for AI/ANs and non-AI/ANs (30% versus 29%, respectively). However, AI/ANs with HIV were less likely to have had the infection diagnosed by private physicians (13%) than non-AI/ANs (20%).

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

Editorial Note: The incidence of AIDS among AI/ANs increased through the early 1990s and leveled off during 1995–1996. Compared with all persons with AIDS in

HIV/AIDS Among American Indians and Alaskan Natives — Continued

FIGURE 2. Estimated rate* of AIDS-defining opportunistic illness among American Indians and Alaskan Natives aged ≥13 years, by sex and year of diagnosis — United States, 1986–1996



*Per 100,000 population.

the United States, AIDS among AI/ANs was geographically clustered in selected areas in the West and in smaller cities and rural areas. AI/ANs who had AIDS were relatively younger than all persons with AIDS. The higher percentage of AI/ANs aged 13–29 years who had HIV (without AIDS) suggests that these persons were infected more recently than AI/ANs who had AIDS. These HIV and AIDS surveillance data should be used by public health officials and HIV prevention community planning groups as a basis for public health programs directed at AI/ANs to prevent HIV transmission, particularly in states that have reported the largest numbers of AI/ANs with HIV/AIDS.

The AI/AN population is disproportionately affected by many of the social and behavioral factors associated with increased risk for HIV infection. The AI/AN population is relatively young (median age: 24.2 years) in comparison with the U.S. population (median age: 32.9 years). The AI/AN population is disadvantaged socioeconomically: 31.6% live below poverty level, compared with 13.1% for all races in the United States; 16.2% of AI/AN men and 13.4% of AI/AN women are unemployed, compared with 6.4% of men and 6.2% of women in the total U.S. population (*5*). AI/ANs also have high rates of sexually transmitted diseases. During 1984–1988, AI/ANs in the 13 states in which the AI/AN population was >20,000 had more than twice the average rate of gonorrhea and syphilis cases compared with non-AI/ANs (*6*). AI/AN adolescents residing on reservations have high rates of drug use compared with non-AI/AN

HIV/AIDS Among American Indians and Alaskan Natives — Continued

TABLE 2. Reported number and percentage of American Indians and Alaskan Natives (AI/ANs) aged ≥13 years who had HIV infection (without AIDS), compared with those who had AIDS, by selected characteristics — 25 states,* 1994–1997

Characteristic	AI/ANs with HIV		AI/ANs with AIDS	
	No.	(%)	No.	(%)
Sex				
Male	180	(67.4)	259	(79.2)
Female	87	(32.6)	68	(20.8)
Age group (yrs)				
13–19	14	(5.2)	2	(0.6)
20–29	106	(39.7)	68	(20.8)
30–39	102	(38.2)	165	(50.5)
40–49	37	(13.9)	79	(24.2)
50–59	6	(2.2)	11	(3.4)
≥60	2	(0.8)	2	(0.6)
HIV-exposure category				
Men who have sex with men	81	(30.3)	134	(41.0)
Injecting-drug use	52	(19.5)	67	(20.5)
Men who have sex with men and inject drugs	31	(11.6)	35	(10.7)
Hemophilia/Coagulation disorder	0	(0.0)	7	(2.1)
Heterosexual contact	48	(18.0)	43	(13.1)
Receipt of blood or blood products	1	(0.4)	1	(0.3)
Risk not reported or not identified	54	(20.2)	40	(12.2)
Total	**267**	**(100.0)**	**327**	**(100.0)**

*Alabama, Arizona, Arkansas, Colorado, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

adolescents (*7*). These factors emphasize the multiple challenges of developing HIV-risk reduction interventions for this population.

During 1995–1996, the incidence of AIDS-OI leveled among AI/ANs. This leveling may reflect 1) the overall decline in the growth rate of the AIDS epidemic in the United States, which has been attributed to a decline in the rate of new HIV infections, and 2) delays in AIDS-OI incidence among HIV-infected AI/ANs who are receiving antiretroviral therapy and OI prophylaxis (*8*). AIDS-OI incidence also has leveled among other racial/ethnic minorities (i.e., non-Hispanic blacks and Hispanics) (*8*). To maximize opportunities to benefit from new treatment advances, timely access to HIV counseling and testing, early access to care, and treatment services are critical. These surveillance findings suggest that HIV-infected AI/ANs, who disproportionately reside in rural areas (including reservations), may have reduced access to facilities for HIV diagnosis and treatment, and medical and public health staff in these areas may have less experience with the currently recommended practices for HIV prevention and care.

AI/ANs who had AIDS were more than twice as likely to be classified in the MSM/IDU risk category compared with all persons who had AIDS in the United States. In addition, HIV surveillance data reflect more recent HIV transmission among AI/ANs who were young, who were female, and who engaged in high-risk sex or drug-use

HIV/AIDS Among American Indians and Alaskan Natives — Continued

behaviors. These surveillance findings highlight the need for a variety of HIV-prevention strategies for AI/ANs and the importance of early access to HIV-testing and care services for this population.

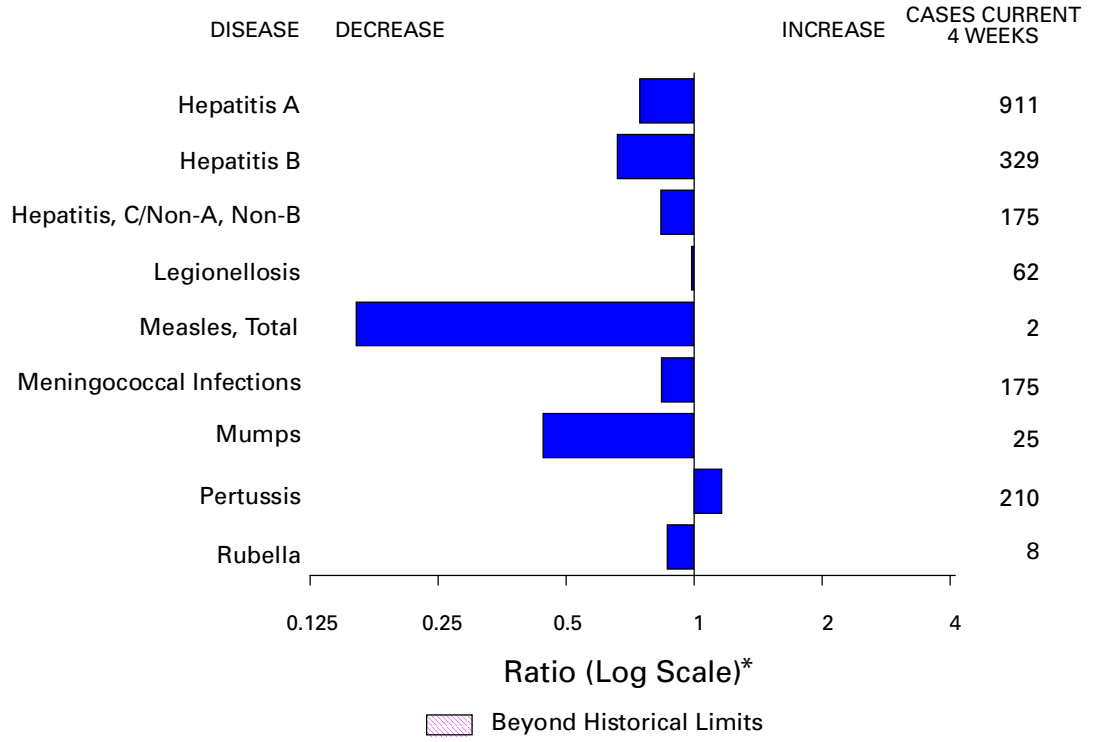
One limitation of these data was the possible underrepresentation of the impact of the HIV/AIDS epidemic among AI/ANs because of misclassification of AI/ANs to other racial/ethnic populations (i.e., previous reports have indicated high rates of misclassification of AI/ANs to non-Hispanic white or Hispanic categories [*9*]). Because information about tribal affiliation of AI/ANs is not collected, efforts to develop culturally appropriate prevention messages are limited. States in which the AI/AN population is large can benefit from enhanced surveillance efforts that supplement HIV/AIDS surveillance data and collect information about socioeconomic status, education, cultural affiliation, HIV-related risk behavior(s), and access to health care (*10*).

Despite potential biases of self-selection for HIV testing and overrepresentation of groups targeted for voluntary screening, HIV surveillance data represent persons at an earlier stage in the course of HIV disease than those represented by AIDS surveillance data. HIV surveillance data can facilitate identification of priority groups in need of HIV-prevention and care services. Prevention planning groups at the community level should direct HIV-prevention efforts for AI/ANs to target specific risk behaviors, taking into account the cultural diversity and traditional beliefs of AI/ANs in both rural and urban communities.

References

1. Bureau of Indian Affairs. Indian entities recognized and eligible to receive services from the United States Bureau of Indian Affairs [Published notice]. Washington, DC: US Department of the Interior, Bureau of Indian Affairs, March 1998.
2. CDC. HIV/AIDS surveillance report. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, 1996. (Vol 8, no. 1).
3. Bureau of the Census. U.S. population estimates, by age, sex, race, and Hispanic origin: 1980 to 1991 (advance report). Washington, DC: US Department of Commerce, Bureau of the Census, 1992; document no. P25-1095.
4. Bureau of the Census. U.S. population estimates by age, sex, race, and Hispanic origin: 1990–1996. Washington, DC: US Department of Commerce, Bureau of the Census, 1997; document no. PPL-57.
5. Indian Health Service. Selected economic profiles for the United States, 1990 census and percent age distribution. In: Trends in Indian health—1996. Rockville, Maryland: US Department of Health and Human Services, Indian Health Service, 1996:32–4.
6. Toomey KE, Oberschelp AG, Greenspan JR. Sexually transmitted diseases and Native Americans: trends in reported gonorrhea and syphilis morbidity, 1984–88. Public Health Rep 1989; 104:566–72.
7. Beauvais F, Oetting ER, Wolf W, Edwards RW. American Indian youth and drugs, 1976–87: a continuing problem. Am J Public Health 1989;79:634–6.
8. CDC. Update: trends in AIDS incidence—United States, 1996. MMWR 1997;46:861–7.
9. National Commission on AIDS. The challenge of HIV/AIDS in communities of color. Washington, DC: National Commission on AIDS, 1992:57–61.
10. Diaz T, Chu SY, Conti L, et al. Health insurance coverage among persons with AIDS: results from a multistate surveillance project. Am J Public Health 1994;84:1015–8.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending February 28, 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 February 28, 1998 (8th Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	-
Brucellosis	3	Poliomyelitis, paralytic[¶]	-
Cholera	-	Psittacosis	7
Congenital rubella syndrome	-	Rabies, human	-
Cryptosporidiosis*	192	Rocky Mountain spotted fever (RMSF)	10
Diphtheria	-	Streptococcal disease, invasive Group A	247
Encephalitis: California*	2	Streptococcal toxic-shock syndrome*	12
eastern equine*	-	Syphilis, congenital**	-
St. Louis*	-	Tetanus	2
western equine*	-	Toxic-shock syndrome	14
Hansen Disease	14	Trichinosis	1
Hantavirus pulmonary syndrome*[†]	-	Typhoid fever	34
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 28, 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 February 28, 1998, and February 22, 1997 (8th 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	8,942	60,797	64,666	100	34	40,294	42,151	309	389
NEW ENGLAND	202	253	2,916	2,608	15	8	841	909	4	7
Maine	4	13	160	124	-	-	8	8	-	-
N.H.	11	2	126	126	5	2	18	37	-	-
Vt.	8	10	40	58	-	-	1	10	-	-
Mass.	73	122	1,339	1,098	6	6	336	342	4	7
R.I.	21	26	387	306	1	-	53	88	-	-
Conn.	85	80	864	896	3	-	425	424	-	-
MID. ATLANTIC	2,112	3,202	8,047	8,183	2	1	4,856	4,986	40	27
Upstate N.Y.	299	405	N	N	2	-	412	689	38	18
N.Y. City	1,160	1,775	5,342	4,453	-	1	2,496	2,051	-	-
N.J.	287	587	186	1,550	-	-	588	1,064	-	-
Pa.	366	435	2,519	2,180	N	-	1,360	1,182	2	9
E.N. CENTRAL	512	492	11,926	9,830	20	2	8,952	6,379	65	103
Ohio	93	136	3,774	3,216	6	-	2,329	2,141	3	4
Ind.	81	25	1,261	1,286	5	-	889	991	1	1
Ill.	249	116	2,875	1,638	8	-	2,629	779	2	16
Mich.	57	177	3,473	1,991	1	-	2,878	1,748	59	82
Wis.	32	38	543	1,699	N	2	227	720	-	-
W.N. CENTRAL	152	227	4,144	4,444	9	5	1,693	2,003	8	18
Minn.	22	18	670	1,116	3	2	268	384	-	-
Iowa	9	37	534	752	1	-	154	183	2	1
Mo.	76	139	1,624	1,437	1	3	791	1,048	6	12
N. Dak.	3	2	1	147	-	-	1	10	-	1
S. Dak.	5	2	275	146	-	-	44	19	-	-
Nebr.	15	12	169	232	2	-	28	71	-	-
Kans.	22	17	871	614	2	-	407	288	-	4
S. ATLANTIC	1,890	2,210	14,081	11,743	17	2	12,064	12,587	20	27
Del.	36	20	325	-	-	-	228	162	-	-
Md.	239	309	1,127	786	9	-	1,328	1,834	3	4
D.C.	192	120	N	N	-	-	487	719	-	-
Va.	114	202	1,755	1,611	N	2	1,067	1,320	1	1
W. Va.	19	14	461	558	N	-	132	164	-	1
N.C.	107	152	3,033	2,805	4	-	2,685	2,514	5	8
S.C.	129	125	2,733	1,897	-	-	1,871	1,875	-	10
Ga.	229	189	2,700	847	2	-	2,593	1,476	3	-
Fla.	825	1,079	1,947	3,239	2	-	1,673	2,523	8	3
E.S. CENTRAL	291	282	5,492	4,756	5	2	5,561	5,232	13	40
Ky.	39	24	966	937	1	-	624	678	-	-
Tenn.	107	110	2,115	1,701	2	2	1,890	1,550	11	19
Ala.	86	87	1,478	1,190	2	-	2,001	1,747	2	3
Miss.	59	61	933	928	-	-	1,046	1,257	-	18
W.S. CENTRAL	896	899	3,592	8,561	1	-	3,316	5,993	-	31
Ark.	33	41	523	389	-	-	991	675	-	-
La.	153	127	1,858	934	-	-	1,649	1,028	-	22
Okla.	52	46	1,211	791	1	-	676	667	-	-
Tex.	658	685	-	6,447	-	-	-	3,623	-	9
MOUNTAIN	205	265	2,851	3,122	9	5	1,124	1,043	87	50
Mont.	9	8	107	95	-	-	6	7	4	3
Idaho	5	4	156	217	2	-	9	19	16	12
Wyo.	-	5	126	73	-	-	9	7	44	18
Colo.	39	95	-	192	1	1	424	290	5	5
N. Mex.	38	26	666	654	2	2	125	143	5	5
Ariz.	60	29	1,471	1,277	N	2	490	427	-	4
Utah	26	17	215	208	3	-	25	28	7	1
Nev.	28	81	110	406	1	-	36	122	6	2
PACIFIC	1,161	1,112	7,748	11,419	22	9	1,887	3,019	72	86
Wash.	77	92	1,609	1,360	2	3	283	348	2	2
Oreg.	31	31	456	626	5	2	78	99	1	1
Calif.	1,038	963	5,161	9,014	15	3	1,433	2,426	37	55
Alaska	-	16	268	206	-	-	44	79	-	-
Hawaii	15	10	254	213	N	1	49	67	32	28
Guam	-	-	8	54	N	-	2	4	-	-
P.R.	273	144	U	U	1	U	59	87	2	8
V.I.	8	4	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	7	4	-	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 January 25, 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 February 28, 1998, and February 22, 1997 (8th 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	120	135	339	441	109	186	942	1,365	647	1,715	838
NEW ENGLAND	6	10	43	103	5	6	11	21	30	30	158
Maine	-	-	-	-	-	-	-	-	U	2	20
N.H.	1	2	1	4	-	1	-	-	-	1	14
Vt.	-	2	-	2	-	-	-	-	-	-	3
Mass.	2	3	13	16	5	4	11	12	22	9	48
R.I.	3	-	2	11	-	1	-	-	8	4	13
Conn.	-	3	27	70	-	-	-	9	U	14	60
MID. ATLANTIC	18	22	193	277	25	33	34	52	37	198	208
Upstate N.Y.	9	5	62	25	11	4	2	8	U	22	124
N.Y. City	-	-	-	19	11	15	7	10	U	103	U
N.J.	-	3	-	79	-	12	10	24	37	46	32
Pa.	9	14	131	154	3	2	15	10	U	27	52
E.N. CENTRAL	37	56	15	1	8	19	136	118	42	204	5
Ohio	20	31	15	-	1	1	34	42	5	58	5
Ind.	3	5	-	-	1	2	36	26	U	17	-
Ill.	-	1	-	1	-	8	46	14	37	111	-
Mich.	11	17	-	-	6	7	15	14	U	10	-
Wis.	3	2	U	U	-	1	5	22	U	8	-
W.N. CENTRAL	9	9	1	1	2	3	15	27	25	43	66
Minn.	-	-	-	-	-	-	-	7	U	17	12
Iowa	-	-	1	-	1	1	-	1	U	8	21
Mo.	7	5	-	-	1	2	10	14	25	10	3
N. Dak.	-	-	-	-	-	-	-	-	U	1	17
S. Dak.	-	-	-	-	-	-	-	-	-	1	6
Nebr.	2	3	-	1	-	-	2	-	-	-	-
Kans.	-	1	-	-	-	-	3	5	U	6	7
S. ATLANTIC	27	16	67	41	34	40	403	535	118	246	327
Del.	1	1	-	8	1	2	2	3	-	6	-
Md.	6	9	61	26	16	14	84	155	33	22	80
D.C.	2	1	3	4	3	3	13	24	17	10	-
Va.	4	-	-	-	2	8	38	37	5	40	83
W. Va.	N	N	-	-	-	-	-	-	10	7	9
N.C.	3	3	-	1	4	1	114	104	53	38	85
S.C.	3	-	-	1	-	3	47	72	U	11	12
Ga.	-	-	2	1	6	7	77	97	U	39	27
Fla.	8	2	1	-	2	2	28	43	U	73	31
E.S. CENTRAL	2	5	6	13	4	5	189	297	-	134	21
Ky.	-	-	-	1	-	1	23	17	U	21	3
Tenn.	2	1	5	2	3	1	98	121	U	43	10
Ala.	-	1	1	-	1	1	44	77	U	55	8
Miss.	-	3	-	10	-	2	24	82	U	15	-
W.S. CENTRAL	-	1	-	-	2	3	93	238	5	260	28
Ark.	-	-	-	-	-	1	24	29	5	15	1
La.	-	-	-	-	2	2	60	86	-	9	-
Okla.	-	1	-	-	-	-	9	21	U	23	27
Tex.	-	-	-	-	-	-	-	102	U	213	-
MOUNTAIN	8	10	1	-	8	11	39	27	34	41	10
Mont.	-	-	-	-	-	1	-	-	-	-	4
Idaho	-	-	-	-	1	-	-	-	-	-	-
Wyo.	-	-	-	-	-	1	-	-	1	1	6
Colo.	2	3	-	-	3	6	3	-	U	10	-
N. Mex.	1	-	-	-	3	-	-	-	7	-	-
Ariz.	-	3	-	-	-	-	34	23	20	19	-
Utah	4	3	-	-	1	-	2	-	6	1	-
Nev.	1	1	1	-	-	3	-	4	U	10	-
PACIFIC	13	6	13	5	21	66	22	50	356	559	15
Wash.	-	1	-	-	-	-	4	3	U	37	-
Oreg.	-	-	-	2	5	2	1	1	U	18	-
Calif.	13	4	13	3	16	64	17	46	339	461	11
Alaska	-	-	-	-	-	-	-	-	4	14	4
Hawaii	-	1	-	-	-	-	-	-	13	29	-
Guam	-	-	-	-	-	-	-	1	-	11	-
P.R.	-	-	-	-	-	2	50	33	-	-	10
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	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 February 28, 1998, and February 22, 1997 (8th 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	136	172	2,138	3,669	804	1,095	1	1	-	2	3	11
NEW ENGLAND	9	12	49	85	5	30	-	-	-	1	1	-
Maine	-	2	8	3	-	1	-	-	-	-	-	-
N.H.	1	2	2	4	2	2	-	-	-	-	-	-
Vt.	-	-	3	4	-	1	-	-	-	-	-	-
Mass.	8	7	8	40	1	18	-	-	-	1	1	-
R.I.	-	1	4	3	2	2	-	-	-	-	-	-
Conn.	-	-	24	31	-	6	-	-	-	-	-	-
MID. ATLANTIC	19	26	93	330	104	188	-	-	-	1	1	4
Upstate N.Y.	10	1	44	14	37	23	-	-	-	1	1	2
N.Y. City	2	11	27	177	27	81	-	-	-	-	-	1
N.J.	7	10	2	56	-	38	-	-	-	-	-	1
Pa.	-	4	20	83	40	46	-	-	-	-	-	-
E.N. CENTRAL	15	28	328	414	102	184	-	-	-	-	-	1
Ohio	12	16	61	82	12	13	-	-	-	-	-	-
Ind.	2	3	39	35	5	18	-	-	-	-	-	-
Ill.	-	6	17	147	3	57	-	-	-	-	-	-
Mich.	-	3	199	114	81	84	-	-	-	-	-	1
Wis.	1	-	12	36	1	12	-	-	-	-	-	-
W.N. CENTRAL	1	5	268	259	58	87	-	-	-	-	-	-
Minn.	-	2	5	1	2	-	-	-	-	-	-	-
Iowa	-	1	101	35	7	6	-	-	-	-	-	-
Mo.	1	2	146	161	44	70	-	-	-	-	-	-
N. Dak.	-	-	1	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	1	5	1	-	-	-	-	-	-	-
Nebr.	-	-	3	10	2	4	-	-	-	-	-	-
Kans.	-	-	11	47	2	7	-	-	-	-	-	-
S. ATLANTIC	37	30	205	233	119	103	-	-	-	-	-	-
Del.	-	-	-	6	-	1	-	-	-	-	-	-
Md.	9	11	55	72	20	28	-	-	-	-	-	-
D.C.	-	-	8	7	1	6	-	-	-	-	-	-
Va.	3	2	25	24	10	11	-	-	-	-	-	-
W. Va.	1	1	-	3	-	3	-	-	-	-	-	-
N.C.	3	7	14	33	41	26	-	-	-	-	-	-
S.C.	-	3	7	13	-	7	-	-	-	-	-	-
Ga.	10	3	41	28	22	1	-	-	-	-	-	-
Fla.	11	3	55	47	25	20	-	-	-	-	-	-
E.S. CENTRAL	6	14	58	102	63	90	-	-	-	-	-	1
Ky.	-	1	-	17	-	4	-	-	-	-	-	-
Tenn.	6	8	44	44	50	58	-	-	-	-	-	-
Ala.	-	5	14	23	13	14	-	-	-	-	-	1
Miss.	-	-	-	18	-	14	-	-	-	-	-	-
W.S. CENTRAL	9	5	85	402	19	43	-	-	-	-	-	-
Ark.	-	-	5	34	10	7	-	-	-	-	-	-
La.	4	-	4	9	3	5	-	-	-	-	-	-
Okla.	4	4	69	226	6	1	-	-	-	-	-	-
Tex.	1	1	7	133	-	30	-	-	-	-	-	-
MOUNTAIN	28	13	476	645	120	132	1	1	-	-	1	-
Mont.	-	-	6	20	1	-	-	-	-	-	-	-
Idaho	-	-	33	34	4	3	1	1	-	-	1	-
Wyo.	-	-	9	3	2	4	-	-	-	-	-	-
Colo.	4	1	47	82	13	34	-	-	-	-	-	-
N. Mex.	-	1	33	48	42	43	-	-	-	-	-	-
Ariz.	17	4	285	254	32	26	-	-	-	-	-	-
Utah	2	2	34	156	11	13	-	-	-	-	-	-
Nev.	5	5	29	48	15	9	-	-	-	-	-	-
PACIFIC	12	39	576	1,199	214	238	-	-	-	-	-	5
Wash.	1	-	50	60	16	4	-	-	-	-	-	-
Oreg.	9	7	48	77	14	16	-	-	-	-	-	-
Calif.	-	30	473	1,029	180	211	-	-	-	-	-	2
Alaska	1	-	1	5	1	4	-	-	-	-	-	-
Hawaii	1	2	4	28	3	3	-	-	-	-	-	3
Guam	-	-	-	-	-	1	U	-	U	-	-	-
P.R.	-	-	-	34	35	96	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	-	2	-	1	7	6	U	-	U	-	-	-

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

*Of 27 cases among children aged <5 years, serotype was reported for 12 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 February 28, 1998, and February 22, 1997 (8th 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	439	647	9	52	62	63	488	707	1	27	6
NEW ENGLAND	32	39	-	-	2	12	102	235	-	9	-
Maine	3	4	-	-	-	-	4	4	-	-	-
N.H.	1	3	-	-	-	4	10	28	-	-	-
Vt.	1	1	-	-	-	-	15	81	-	-	-
Mass.	13	25	-	-	-	8	70	114	-	-	-
R.I.	3	1	-	-	1	-	-	7	-	-	-
Conn.	11	5	-	-	1	-	3	1	-	9	-
MID. ATLANTIC	33	58	-	1	7	11	38	47	-	12	2
Upstate N.Y.	13	11	-	1	-	11	38	21	-	12	-
N.Y. City	5	12	-	-	1	-	-	13	-	-	2
N.J.	15	10	-	-	2	-	-	4	-	-	-
Pa.	-	25	-	-	4	-	-	9	-	-	-
E.N. CENTRAL	59	89	4	9	9	1	52	79	-	-	3
Ohio	36	33	3	6	3	1	29	37	-	-	-
Ind.	8	9	-	-	2	-	2	2	-	-	-
Ill.	-	31	-	-	1	-	-	8	-	-	-
Mich.	9	6	1	3	2	-	13	18	-	-	-
Wis.	6	10	-	-	1	-	8	14	-	-	3
W.N. CENTRAL	38	56	1	1	3	10	37	31	-	-	-
Minn.	-	2	1	1	1	5	23	18	-	-	-
Iowa	8	11	-	-	2	3	8	6	-	-	-
Mo.	18	28	-	-	-	2	4	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	1	-	-	-
S. Dak.	4	3	-	-	-	-	-	1	-	-	-
Nebr.	1	3	-	-	-	-	2	2	-	-	-
Kans.	7	9	-	-	-	-	-	3	-	-	-
S. ATLANTIC	92	115	3	15	5	2	46	53	1	2	-
Del.	1	2	-	-	-	-	-	-	-	-	-
Md.	13	10	-	2	-	-	7	31	-	-	-
D.C.	-	2	-	-	-	-	-	2	-	-	-
Va.	9	6	1	2	1	-	-	4	-	-	-
W. Va.	2	3	-	-	-	-	-	3	-	-	-
N.C.	18	23	1	5	1	2	25	9	-	1	-
S.C.	9	25	1	3	1	-	5	3	1	1	-
Ga.	25	19	-	-	-	-	-	-	-	-	-
Fla.	15	25	-	3	2	-	9	1	-	-	-
E.S. CENTRAL	17	54	-	-	6	-	11	18	-	-	-
Ky.	-	11	-	-	-	-	-	4	-	-	-
Tenn.	17	20	-	-	2	-	3	4	-	-	-
Ala.	-	18	-	-	2	-	8	6	-	-	-
Miss.	-	5	-	-	2	-	-	4	-	-	-
W.S. CENTRAL	26	35	1	10	5	-	15	10	-	1	-
Ark.	4	9	-	-	-	-	8	2	-	-	-
La.	9	13	-	-	-	-	-	1	-	-	-
Okla.	13	6	-	-	-	-	-	-	-	-	-
Tex.	-	7	1	10	5	-	7	7	-	1	-
MOUNTAIN	31	38	-	4	4	9	150	137	-	3	-
Mont.	1	2	-	-	-	-	1	-	-	-	-
Idaho	1	3	-	-	-	8	90	81	-	-	-
Wyo.	2	-	-	1	-	-	-	3	-	-	-
Colo.	11	2	-	-	1	-	12	40	-	-	-
N. Mex.	6	10	N	N	N	1	38	8	-	-	-
Ariz.	8	11	-	1	-	-	3	4	-	-	-
Utah	1	5	-	-	1	-	4	-	-	2	-
Nev.	1	5	-	2	2	-	2	1	-	1	-
PACIFIC	111	163	-	12	21	18	37	97	-	-	1
Wash.	16	12	-	-	3	18	29	24	-	-	-
Oreg.	28	40	N	N	N	-	8	4	-	-	-
Calif.	64	110	-	6	14	-	-	66	-	-	1
Alaska	1	-	-	2	-	-	-	1	-	-	-
Hawaii	2	1	-	4	4	-	-	2	-	-	-
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	-	3	-	-	2	-	-	-	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 122 U.S. cities,* week ending February 28, 1998 (8th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	665	511	95	32	20	7	76
Boston, Mass.	167	129	21	10	4	3	18
Bridgeport, Conn.	54	40	11	2	-	1	2
Cambridge, Mass.	17	15	1	-	1	-	-
Fall River, Mass.	32	27	2	3	-	-	2
Hartford, Conn.	52	38	7	3	4	-	2
Lowell, Mass.	39	27	9	3	-	-	8
Lynn, Mass.	25	22	3	-	-	-	2
New Bedford, Mass.	38	25	4	2	7	-	1
New Haven, Conn.	48	36	8	1	2	1	4
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	5	4	1	-	-	-	-
Springfield, Mass.	56	45	7	2	2	-	11
Waterbury, Conn.	43	33	8	1	-	1	4
Worcester, Mass.	89	70	13	5	-	1	22
MID. ATLANTIC	2,538	1,809	482	173	42	32	169
Albany, N.Y.	35	23	7	2	2	1	1
Allentown, Pa.	22	17	4	-	1	-	-
Buffalo, N.Y.	60	45	10	2	2	1	1
Camden, N.J.	32	22	6	3	1	-	4
Elizabeth, N.J.	25	17	6	2	-	-	-
Erie, Pa.	60	44	11	1	3	1	4
Jersey City, N.J.	44	30	9	5	-	-	3
New York City, N.Y.	1,241	897	228	91	13	12	57
Newark, N.J.	65	32	17	10	5	1	2
Paterson, N.J.	30	12	10	2	2	4	-
Philadelphia, Pa.	400	269	88	27	9	7	40
Pittsburgh, Pa.§	73	57	10	5	1	-	5
Reading, Pa.	44	35	9	-	-	-	1
Rochester, N.Y.	177	134	25	16	2	-	26
Schenectady, N.Y.	33	27	4	-	-	2	-
Scranton, Pa.	40	30	8	1	1	-	4
Syracuse, N.Y.	104	74	21	6	-	3	14
Trenton, N.J.	24	18	6	-	-	-	5
Utica, N.Y.	29	26	3	-	-	-	2
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,314	1,623	448	145	59	38	153
Akron, Ohio	54	39	8	3	1	3	-
Canton, Ohio	34	24	9	-	-	1	4
Chicago, Ill.	452	285	105	43	15	3	26
Cincinnati, Ohio	145	96	36	3	4	6	20
Cleveland, Ohio	161	113	35	7	3	3	2
Columbus, Ohio	214	157	40	12	2	3	28
Dayton, Ohio	141	102	21	14	4	-	11
Detroit, Mich.	268	164	69	19	9	7	13
Evansville, Ind.	53	41	6	4	1	1	3
Fort Wayne, Ind.	76	55	13	4	2	2	6
Gary, Ind.	26	12	7	3	4	-	1
Grand Rapids, Mich.	72	50	15	3	3	1	6
Indianapolis, Ind.	216	156	38	16	2	4	-
Lansing, Mich.	38	29	5	2	1	1	2
Milwaukee, Wis.	U	U	U	U	U	U	U
Peoria, Ill.	46	38	4	-	3	1	6
Rockford, Ill.	58	49	6	1	2	-	3
South Bend, Ind.	66	56	10	-	-	-	7
Toledo, Ohio	108	86	13	6	2	1	13
Youngstown, Ohio	86	71	8	5	1	1	2
W.N. CENTRAL	953	699	157	47	25	16	106
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	37	28	7	2	-	-	3
Kansas City, Kans.	40	20	14	3	2	1	1
Kansas City, Mo.	112	69	18	5	6	5	7
Lincoln, Nebr.	49	38	10	1	-	-	6
Minneapolis, Minn.	271	217	36	11	4	3	36
Omaha, Nebr.	113	86	20	5	1	1	13
St. Louis, Mo.	128	94	19	9	5	1	22
St. Paul, Minn.	89	69	11	5	1	3	14
Wichita, Kans.	114	78	22	6	6	2	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,144	794	207	102	18	23	99
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	255	170	49	28	6	2	35
Charlotte, N.C.	114	83	16	8	3	4	19
Jacksonville, Fla.	146	96	29	15	2	4	9
Miami, Fla.	105	61	26	14	2	2	-
Norfolk, Va.	65	50	11	2	-	2	3
Richmond, Va.	U	U	U	U	U	U	U
Savannah, Ga.	53	35	7	7	1	3	8
St. Petersburg, Fla.	93	79	8	3	2	1	6
Tampa, Fla.	187	144	27	13	-	3	15
Washington, D.C.	94	50	28	12	2	2	4
Wilmington, Del.	32	26	6	-	-	-	-
E.S. CENTRAL	855	566	202	54	8	23	78
Birmingham, Ala.	212	142	42	20	1	5	26
Chattanooga, Tenn.	122	90	23	6	-	3	15
Knoxville, Tenn.	U	U	U	U	U	U	U
Lexington, Ky.	108	72	25	4	3	4	9
Memphis, Tenn.	160	102	45	10	2	1	18
Mobile, Ala.	51	32	15	4	-	-	1
Montgomery, Ala.	41	29	9	2	-	1	2
Nashville, Tenn.	161	99	43	8	2	9	7
W.S. CENTRAL	1,638	1,098	319	131	59	31	126
Austin, Tex.	91	65	14	8	3	1	6
Baton Rouge, La.	35	24	5	2	4	-	2
Corpus Christi, Tex.	57	38	10	6	1	2	2
Dallas, Tex.	198	114	51	18	13	2	9
El Paso, Tex.	115	83	17	9	2	4	9
Ft. Worth, Tex.	143	105	26	7	3	2	6
Houston, Tex.	475	284	108	51	24	8	41
Little Rock, Ark.	127	95	18	8	1	5	8
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	210	153	34	16	3	4	22
Shreveport, La.	56	35	14	4	1	2	8
Tulsa, Okla.	131	102	22	2	4	1	13
MOUNTAIN	1,080	720	238	66	30	26	118
Albuquerque, N.M.	112	79	25	7	1	-	6
Boise, Idaho	45	29	10	2	1	3	6
Colo. Springs, Colo.	65	46	12	1	3	3	9
Denver, Colo.	123	83	19	13	6	2	19
Las Vegas, Nev.	222	143	63	11	2	3	14
Ogden, Utah	24	20	3	1	-	-	4
Phoenix, Ariz.	199	114	58	10	12	5	23
Pueblo, Colo.	21	15	4	2	-	-	5
Salt Lake City, Utah	100	62	19	9	3	7	10
Tucson, Ariz.	169	129	25	10	2	3	22
PACIFIC	1,843	1,338	308	123	37	37	150
Berkeley, Calif.	27	19	6	2	-	-	3
Fresno, Calif.	U	U	U	U	U	U	U
Glendale, Calif.	21	20	1	-	-	-	3
Honolulu, Hawaii	83	66	9	4	4	-	5
Long Beach, Calif.	98	68	19	5	2	4	12
Los Angeles, Calif.	463	320	79	40	10	14	36
Pasadena, Calif.	33	29	2	1	1	-	4
Portland, Oreg.	100	77	13	8	2	-	2
Sacramento, Calif.	161	110	33	12	4	2	15
San Diego, Calif.	173	120	30	10	6	7	19
San Francisco, Calif.	168	115	39	7	3	4	13
San Jose, Calif.	199	156	25	17	-	1	20
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	134	98	25	6	3	2	6
Spokane, Wash.	47	34	11	2	-	-	4
Tacoma, Wash.	136	106	16	9	2	3	8
TOTAL	13,030¶	9,158	2,456	873	298	233	1,075

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: 1998-633-228/67059 Region IV**