

- 285 Zidovudine for the Prevention of HIV Transmission from Mother to Infant
- 288 Differences in Infant Mortality Between Blacks and Whites — United States, 1980–1991
- 290 Clean Air Month May 1994
- **290** Populations at Risk from Particulate Air Pollution — United States, 1992
- 293 Update: Dracunculiasis Eradication Ghana and Nigeria, 1993

Effectiveness in Disease and Injury Prevention

MORBIDITY AND MORTALITY WEEKLY REPORT

Zidovudine for the Prevention of HIV Transmission from Mother to Infant

Worldwide, perinatal (i.e., mother to infant) transmission accounts for most human immunodeficiency virus (HIV) infections among children; in the United States, of the approximately 7000 infants born to HIV-infected mothers each year, 1000–2000 are HIV-infected (1). Strategies for reducing perinatally acquired HIV infection have included preventing HIV infection among women and, for HIV-infected women, avoiding pregnancy or refraining from breastfeeding their infants (2). On February 21, 1994, the National Institutes of Health's National Institute of Allergy and Infectious Diseases (NIAID) and National Institute of Child Health and Human Development (NICHD) announced preliminary results from a randomized, multicenter, double-blinded clinical trial of zidovudine (ZDV) to prevent HIV transmission from mothers to their infants (AIDS Clinical Trials Group [ACTG] protocol 076). This report summarizes the interim results of that trial, which indicate effectiveness of ZDV for prevention of perinatal transmission.*

The study was initiated in April 1991 by the Pediatric ACTG of NIAID in collaboration with NICHD and the National Institute of Health and Medical Research (INSERM) and the National Agency of Research on AIDS (ANRS), France. Eligible participants were HIV-infected pregnant women who had received no antiretroviral treatment during their current pregnancy, had no clinical indications for maternal antepartum antiretroviral therapy in the judgment of their health-care provider, and who had a CD4+ T-lymphocyte count >200/ μ L at time of entry into the study. Enrolled women were randomized to receive either a ZDV or placebo regimen. The ZDV regimen included antepartum ZDV (100 mg given orally five times daily) initiated at 14–34 weeks' gestation and continued for the remainder of the pregnancy; intravenous ZDV during labor (administered intravenously as a loading dose of 2 mg per kg body weight given over 1 hour, followed by continuous infusion of 1 mg per kg body weight per hour until delivery); and oral administration of ZDV to the newborn (ZDV syrup at 2 mg per kg

^{*}Single copies of this report will be available free until April 29, 1995, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231.

Zidovudine — Continued

body weight per dose given every 6 hours) for the first 6 weeks of life, beginning 8–12 hours after birth (see box). The placebo regimen was given on the same schedule. Blood specimens were obtained for HIV culture from all infants at birth and at ages 12, 24, and 78 weeks. A positive viral culture was considered indicative of HIV infection. Infants also were tested for HIV antibody at ages 15 and 18 months.

Based on analysis of data for 364 births through December 1993, ZDV therapy was associated with a 67.5% reduction in the risk for HIV transmission; the estimated rates of transmission were 25.5% (95% confidence interval [CI]=18.3%–33.7%) among the 184 children in the group receiving the placebo regimen compared with 8.3% (95% CI=3.8%–13.8%) among the 180 children in the group receiving ZDV (Kaplan-Meier estimate at age 18 months; p=0.00006). Although the ZDV regimen was well tolerated by mothers and infants, hemoglobin levels were lower for infants in the ZDV group (mean decrease in hemoglobin was <1 g/dL); however, this problem resolved without therapy following completion of ZDV treatment. The incidence of reported side effects was similar among mothers and infants between the two randomized groups.

Based on these interim findings, NIAID accepted the recommendation of an independent data and safety monitoring board to terminate enrollment into the trial and to offer ZDV to women in the group who had received the placebo but had not yet delivered and to their infants aged <6 weeks. An NIAID Clinical Trials Alert summarizing the trial is available by calling (800) 874-2572.

Reported by: Div of AIDS, National Institute of Allergy and Infectious Diseases; Center for Research for Mothers and Children, National Institute of Child Health and Human Development; National Institutes of Health.

Eligibility Criteria and Zidovudine Regimen for HIV-Infected Pregnant Women and Their Infants Participating in AIDS Clinical Trials Group Protocol 076

Patient Eligibility:

- Has not received antiretroviral treatment during current pregnancy
- Has no clinical indications for maternal antepartum antiretroviral therapy in the judgment of her health-care provider
- Has a CD4+ T-lymphocyte count >200/µL at initial assessment

Zidovudine Regimen:

- Oral administration of 100 mg zidovudine (ZDV) five times daily, initiated at 14–34 weeks' gestation and continued for the remainder of the pregnancy
- During labor, intravenous administration of ZDV in a loading dose of 2 mg per kg body weight given over 1 hour, followed by continuous infusion of 1 mg per kg body weight per hour until delivery
- Oral administration of ZDV to the newborn (ZDV syrup at 2 mg per kg body weight per dose given every 6 hours) for the first 6 weeks of life, beginning 8–12 hours after birth

Zidovudine — Continued

Editorial Note: This clinical trial demonstrated efficacy of ZDV in reducing perinatal HIV transmission when administered to HIV-infected women meeting the study's eligibility criteria (see box). However, these findings are subject to at least four limitations. First, the study did not assess the efficacy of ZDV among women with CD4+ T-lymphocyte counts ≤200 cells/µL or among women who had previously used ZDV for extended periods and who may be infected with ZDV-resistant strains of HIV. Second, this trial could not assess the relative or independent contributions of the antepartum treatment, intrapartum treatment, or treatment of the infant; therefore, the efficacy and side effects of ZDV regimens restricted to only one or two of these treatment periods is unknown. Third, the study did not evaluate the risk or benefit of ZDV use in the first trimester. Finally, the study has not yet provided information about long-term side effects for infants and mothers treated with ZDV, including infants who did not become infected with HIV; however, long-term follow-up of infants and mothers is being conducted to monitor for possible late side effects.

Based on the findings of ACTG protocol 076, the Public Health Service (PHS) provides the following interim recommendations^{\dagger}: 1) all health-care workers providing care to pregnant women and women of childbearing age should be informed of the results of ACTG protocol 076; 2) HIV-infected pregnant women meeting the protocol eligibility criteria should be informed of the potential benefits but unknown long-term risks of ZDV therapy as administered in ACTG protocol 076, and decisions to use ZDV for prevention of perinatal transmission should be made in consultation with their health-care providers (see box); 3) health-care providers should inform their patients that this ZDV regimen substantially reduced, but did not eliminate, the risk for HIV infection among the infants; and 4) until the potential risk for teratogenicity and other complications from ZDV therapy given in the first trimester can be assessed, ZDV therapy only for the purpose of reducing the risk for perinatal transmission should not be instituted earlier than the 14th week of gestation. PHS is developing further recommendations for the uses of ZDV for HIV-infected pregnant women whose clinical indications differ from the ACTG protocol 076 eligibility criteria and for counseling and HIV-antibody testing for women of childbearing age.

The international Antiretroviral Pregnancy Registry, sponsored by Burroughs Wellcome Co. (Research Triangle Park, North Carolina)[§] and Hoffmann-LaRoche Foundation, Inc. (Nutley, New Jersey)[§], is collecting observational, nonexperimental data on exposure to ZDV and dideoxycytidine (ddC) during pregnancy. Women who have been treated with either of these drugs at any time during pregnancy for any duration are eligible for registry enrollment. Patients can be enrolled by contacting the registry, telephone (800) 722-9292, extension 8465; fax (919) 315-8981.

References

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[†]These recommendations do not reflect current Food and Drug Administration-approved labeling for ZDV.

[§]Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Topics in Minority Health

Differences in Infant Mortality Between Blacks and Whites — United States, 1980–1991

National health objectives for the year 2000 include reducing the overall infant mortality rate (i.e., deaths at age <1 year per 1000 live births) to no more than 7.0 per 1000 live births (objective 14.1) and the infant mortality rate for blacks to no more than 11.0 (objective 14.1a) (1). Achieving this goal will require reducing the race-specific differences in infant mortality. During 1979–1981, infant mortality was the second leading cause of excess deaths among blacks aged <45 years, accounting for approximately 6000 more deaths among black infants than among white infants (2). Since 1960, rates for infant mortality and low birthweight (LBW) (<2500 g [<5 lbs, 8 oz]) for blacks were twice those for whites; these ratios remained stable through the early 1980s. To characterize current trends in the ratios of race-specific infant mortality, LBW, and very low birthweight (VLBW) (<1500 g [<3 lbs, 4 oz]) rates among blacks and whites, data were analyzed from published reports of final birth and mortality statistics from 1980 through 1991* (3,4). This report summarizes the results of that analysis.

From 1980 to 1991, the overall infant mortality rate in the United States declined 29.4% (from 12.6 to 8.9). Infant mortality among whites declined 33% (from 10.9 to 7.3), while infant mortality among blacks declined 20.7% (from 22.2 to 17.6). The ratio of infant mortality rates for blacks compared with whites increased 20% (from 2.0 to 2.4), while the ratio of LBW infants among black infants compared with that among white infants increased 4.0% (from 2.2 to 2.3), and the ratio of VLBW infants increased 11.2% (from 2.8 to 3.1) (Figure 1).

Reported by: Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The findings in this report indicate that, despite overall declines in infant mortality during the 1980s, the differences in race-specific rates for infant mortality, LBW, and VLBW between blacks and whites have steadily increased. Based on current trends, the differences are expected to be threefold by the year 2000.

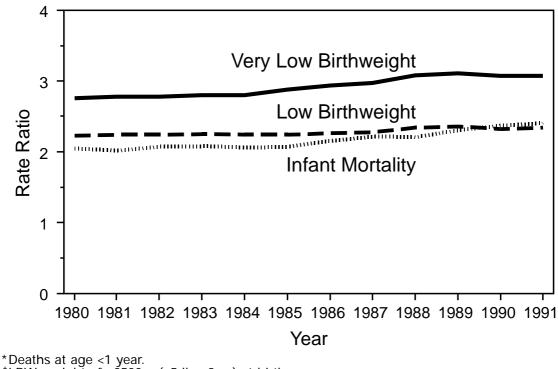
A substantial portion of the race-specific difference reflects the high rate of VLBW among black infants (5). However, known risk factors for LBW and infant mortality (i.e., medical complications during pregnancy [6] and lack of prenatal care [7]) account for only a small proportion of this difference. For example, the difference persists when race-specific rates are controlled for educational level of mother (8).

Efforts to narrow the race-specific difference in infant mortality should be aimed at reducing known risk factors; however, reducing the unexplained differences will require the identification of protective and risk factors not yet clearly elucidated and the subsequent development and evaluation of prevention strategies. Efforts to identify new potential risk factors include assessment of psychosocial factors (i.e., stress, social support, and coping mechanisms), environmental factors (i.e., housing, lead exposure, and violence), and access to health care (9).

^{*}Most recent year for which published data were available.

Infant Mortality — Continued

FIGURE 1. Black–white ratios in infant mortality*, low birthweight (LBW)[†], and very low birthweight (VLBW)[§] rates[¶] — United States, 1980–1991



[†]LBW=weight of <2500 g (<5 lbs, 8 oz) at birth. [§]VLBW=weight <1500 g (<3 lbs, 4 oz) at birth. [¶]Per 1000 live births.

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Clean Air Month — May 1994

Since 1972, the American Lung Association (ALA) has sponsored Clean Air Week each May to educate the public about the relation between clean air and respiratory health. This year Clean Air Week has been expanded to Clean Air Month; its theme, "Clean Air Is Up To You!" emphasizes the role of each person in promoting clean air.

Through local Clean Air Month activities, ALA will emphasize approaches such as driving less, conserving energy, keeping indoor air clean, and supporting clean air regulations—to reduce air pollution. Local ALA chapters will sponsor environmental health fairs, school presentations, and other community events. Approximately 50 communities in the United States also will participate in the Clean Air Challenge, a pledge-based event to raise funds for local clean air programs and other efforts aimed at preventing lung disease. In addition, many local ALA offices will implement Clean Commute Day(s) to encourage motorists to try alternative forms of transportation (e.g., carpools, mass transit, or bicycles). This issue of *MMWR* includes a report that provides estimates of the number of persons potentially exposed to particulate air pollution.

Additional information about Clean Air Month and related activities is available from local ALA offices (telephone [800] 586-4872) or from the national office (1740 Broadway, New York, NY 10019-4374; telephone [212] 315-8700).

Health Objectives for the Nation

Populations at Risk from Particulate Air Pollution — United States, 1992

Despite improvements in air quality since the 1970s, air pollution remains an important environmental risk to human health. A national health objective for the year 2000 is to reduce exposure to air pollutants so that at least 85% of persons live in counties that meet U.S. Environmental Protection Agency (EPA) standards (objective 11.5) (1). This report provides estimates from the American Lung Association (ALA) of populations potentially at risk from exposure to particulate air pollution in the United States during 1992.

The National Ambient Air Quality Standard for particulate matter <10 μ m in diameter (PM₁₀) is 150 μ g/m³, averaged over 24 hours (2). The federal standard is met if this value is not exceeded more than once per calendar year, and the annual arithmetic mean is \leq 50 μ g/m³. Information in this report is based on the second highest maximum 24-hour PM₁₀ concentrations recorded by at least one monitor in 1992 (EPA, unpublished data, 1993). Both the federal "exceedance" definition (\geq 155 μ g/m³) and a similar approach applied to the California standard* (\geq 55 μ g/m³) were used as cutoff values. Estimates of the numbers of persons potentially exposed to levels of PM₁₀

^{*}California's particulate matter air quality standard of 50 μ g/m³ averaged over 24 hours (3) is the most stringent standard in the United States.

Particulate Air Pollution — Continued

above these cutoff values were derived from 1991 census figures for each county (U.S. Bureau of the Census, unpublished data, 1992).

For this report, a population at risk was defined as persons who have a "significantly higher probability of developing a condition, illness, or other abnormal status," as described by EPA (4). Five at-risk populations were included: preadolescent children (aged \leq 13 years), the elderly (aged \geq 65 years), persons aged <18 years with asthma, adults (aged \geq 18 years) with asthma, and persons with chronic obstructive pulmonary disease (COPD) (e.g., chronic bronchitis and emphysema). Age-specific county populations for 1991 were estimated by applying the population age distribution of each state (U.S. Bureau of the Census, unpublished data, 1992) to the counties within that state. The number of persons with asthma or COPD in each county was estimated by applying age-specific prevalences from CDC's National Health Interview Survey (5) to age-specific population estimates for each county. Although PM₁₀ levels are presented on a county basis, they do not indicate that all areas of the county were subject to that level or that all persons in the county were exposed to the recorded concentration.

During 1992, PM₁₀ levels were $\geq 155 \ \mu g/m^3$ in 16 counties; an estimated 23 million persons (9.1% of the total U.S. population) resided in these counties (Table 1). Approximately 92 million additional persons (36% of the U.S. population) resided in counties in which PM₁₀ levels were 55 $\mu g/m^3$ -154 $\mu g/m^3$. Overall, an estimated 115 million persons (45% of the U.S. population) resided in counties with PM₁₀ levels $\geq 55 \ \mu g/m^3$ (Table 1). In the United States during 1992, 46% of persons with asthma lived in communities with levels of particulate air pollution higher than the California standard.

	PM ₁₀ levels ≥1	PM₁₀ levels ≥55 μg/m³			
Population at risk	No.	(%)¶	No.	(%)¶	
Total population	22,894,856	(9.1)	114,671,632	(45.5)	
Preadolescent children					
(aged ≤13 yrs)	4,931,408	(9.5)	23,794,139	(46.0)	
Elderly (aged ≥65 yrs)	2,649,477	(8.3)	14,010,297	(44.1)	
Persons (aged <18 yrs)		. ,		. ,	
with asthma	387,220	(9.5)	1,878,848	(45.9)	
Persons (aged ≥18 yrs)					
with asthma	697,444	(9.1)	3,528,475	(46.2)	
Persons with chronic					
obstructive pulmonary					
disease**	1,243,407	(9.1)	6,263,409	(46.0)	

TABLE 1. Estimated number and percentage of the total population and at-risk*
subgroups residing in counties with particulate air pollution with a diameter of <10 μ m
(PM ₁₀) at levels \geq 155 µg/m ³ and \geq 55 µg/m ^{3†} — United States, 1992§

*Population-at-risk estimates should not be added to form totals. These categories are not mutually exclusive.

[†]PM₁₀ \geq 155 µg/m³ is the federal "exceedance" definition; PM₁₀ \geq 55 µg/m³ is the California "exceedance" standard.

 $^{\text{S}}$ The PM₁₀ level of the county does not imply responsibility for the disease status of its population.

¹Of the total population in the category, the proportion of each population subgroup potentially exposed.

** Includes chronic bronchitis and emphysema.

Particulate Air Pollution — Continued

Reported by: P Vigliarolo, Communications Div; S Rappaport, MPH, K Lieber, MPH, A Gorman, Epidemiology and Statistics Div; R White, MST, National Programs Div, American Lung Association, New York. Air Pollution and Respiratory Health Br, Div of Environmental Hazards and Health Effects, National Center for Environmental Health, CDC.

Editorial Note: Particulate matter (e.g., dust, dirt, and smoke) is a complex and varying mixture of substances. Sources include motor-vehicle emissions, factory and utility smokestacks, residential wood burning, construction activity, mining, agricultural tilling, open burning, wind-blown dust, and fire. Some particles are formed in the atmosphere through the condensation or transformation of other chemical substances. Particles with diameters <10 μ m pose a greater health risk than larger particles because particles of this size are easily inhaled deep into the lungs.

Increased risks for illness and death have been associated with particulate air pollution at levels comparable to those presented in this report (6–8). Acute effects on the respiratory system are well established and include exacerbations of chronic respiratory disease, restrictions in activity, and increases in emergency department visits and hospitalizations for respiratory illness (8). Persons with asthma are particularly sensitive to the effects of particulate air pollution (8). A national health objective for the year 2000 is to reduce asthma morbidity, measured by a reduction in asthma hospitalizations, from 188 per 100,000 in 1987 to no more than 160 per 100,000 (objective 11.1) (1).

The estimates presented in this report underscore the potential public health importance of particulate air pollution. Although levels of airborne particulate pollution declined substantially from 1988 to 1992 (emissions of PM_{10} decreased 8% and air concentrations of PM_{10} decreased 17%) (9), continued efforts are required to reduce health risks associated with particulate air pollution. EPA is reviewing technical and scientific information to determine whether the federal ambient air quality standard for particulate matter, established in 1987, should be revised.

ALA recently issued *The Perils of Particulates* (10), which includes national and county estimates of populations at potential risk for exposure to particulate air pollution. Copies are available from local offices of the ALA, telephone (800) 586-4872.

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Particulate Air Pollution — Continued

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International Notes

Update: Dracunculiasis Eradication — Ghana and Nigeria, 1993

In 1989, Ghana and Nigeria, countries in west Africa, ranked first and second in the number of reported cases of dracunculiasis (i.e., Guinea worm disease) with 179,556 cases and 640,008 cases respectively (1). During 1987–1988, Global 2000 and the World Health Organization (WHO) Collaborating Center for Research, Training, and Eradication of Dracunculiasis at CDC initiated direct, onsite assistance for the eradication of dracunculiasis in Ghana and Nigeria. This report summarizes surveillance data for the two countries during 1993 and describes efforts toward eradication of dracunculiasis.

Ghana

In 1993, Ghana (1991 population: 16 million) reported to WHO 17,918 cases of dracunculiasis from 2306 villages, representing substantial declines in the numbers of cases (46.5%) and villages with endemic disease (25.6%) from 1992 (2). The number of villages included 520 that did not report any cases in 1992 but had at least one case in 1993. Since initiation of active surveillance in 1989, the numbers of cases and villages with endemic disease have decreased by 90.0% (Figure 1) and 64.6%, respectively. During 1993, the Northern Region reported 69.0% of all cases in the country, compared with 51.2% of all cases in 1992.

By the end of 1993, health education and nylon filters had been provided to all known villages with endemic disease, 40% of villages had at least one safe source of drinking water, and temephos (Abate[®]*) was being used in 20% of such villages. Emerging Guinea worms were removed surgically in 8% of persons with detected cases in Ghana in 1993.

Nigeria

In 1993, Nigeria (1992 population: 90 million) reported to WHO 75,752 cases of dracunculiasis from 3614 villages with endemic disease, representing substantial declines in the numbers of cases (58.6%) and known villages with endemic disease (21.0%) from 1992 (*3*). From January 1993 to December 1993, the number of villages reporting some or no cases increased from 2485 to 4159. From the epidemiolgic year July 1987–June 1988 to December 1993, the numbers of cases and villages with endemic disease declined 88.4% (Figure 2) and 38.5%, respectively. Of all cases reported in 1993, 65.5% occurred in five of the 30 states and the Federal Capital Territory:

^{*}Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service of the U.S. Department of Health and Human Services.

Dracunculiasis — Continued

FIGURE 1. Number of reported cases of dracunculiasis, by year — Ghana Guinea Worm Eradication Program, 1989–1993

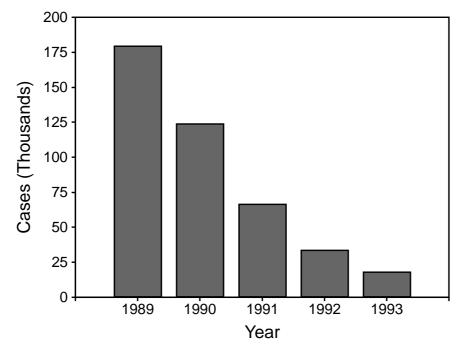
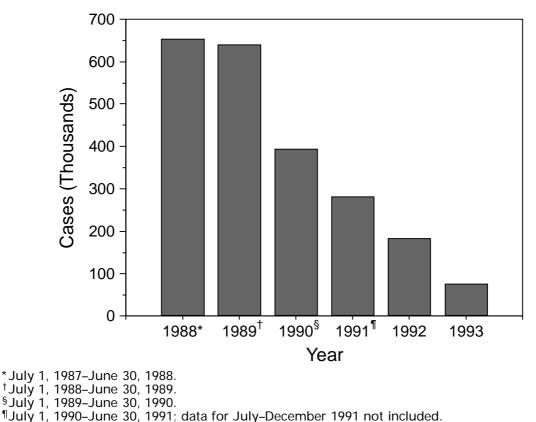


FIGURE 2. Number of reported cases of dracunculiasis, by year — Nigeria Guinea Worm Eradication Program, 1988–1993



Dracunculiasis — Continued

Sokoto (17.0%), Ondo (17.0%), Enugu (16.8%), Katsina (11.3%), and Benue (11.1%). Three states (Akwa Ibom, Anambra, and Kaduna) reported no cases. Four states (Abuja, Imo, Kogi, and Rivers) reported 10 or fewer cases; all of the eight cases reported in Lagos state were imported from other parts of Nigeria.

By the end of 1993, health education had been initiated in all villages with endemic disease, nylon filters had been distributed in 89%, at least one safe source of drinking water already existed or was targeted to be placed by 1996 in 37%, and temephos (Abate[®]) was being used in 9% of such villages. Health workers from seven states had been trained in case-containment measures to be implemented in all areas with endemic disease by 1995.

Reported by: Ministry of Health, Ghana. Federal Ministry of Health and Social Svcs, Nigeria. Global 2000, Inc, The Carter Center, Atlanta. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Div of Parasitic Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: The reductions in the incidence of reported dracunculiasis of at least 90% in Ghana and Nigeria since 1989 are important achievements in the global campaign to eradicate dracunculiasis. Despite the known underreporting in Nigeria in 1993, the findings in this report indicate that both programs have substantially reduced the occurrence of dracunculiasis. Continued reduction of dracunculiasis will require implementation of intensive case-containment measures, health-education efforts, and campaigns to increase public awareness of dracunculiasis prevention.

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Addendum: Vol. 43, No. 14

In the box, "Workers' Memorial Day—April 28, 1994," the following sentence should be added to the end of the first paragraph (page 262): "Workers' Memorial Day was initiated by the American Federation of Labor–Congress of Industrial Organizations (AFL-CIO) and designated by Congress in 1989."

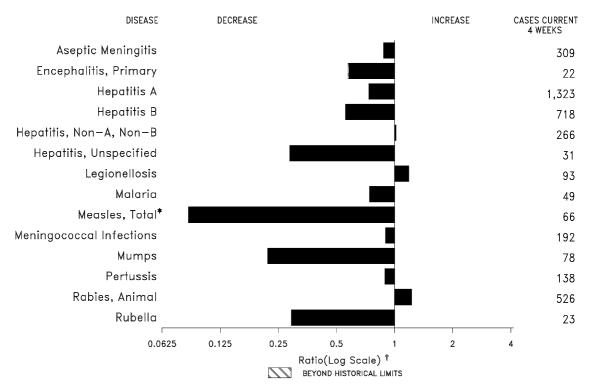


FIGURE I. Notifiable disease reports, comparison of 4-week totals ending April 23, 1994, with historical data — United States

* The large apparent decrease in reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.

[†]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.

	Cum. 1994		Cum. 1994
AIDS* Anthrax Botulism: Foodborne Infant Other Brucellosis Cholera Congenital rubella syndrome Diphtheria Encephalitis, post-infectious Gonorrhea Hamsen Disease Leptospirosis Lyme Disease	20,445 10 16 7 17 4 3 7 111,295 347 34 10 907	Measles: imported indigenous Plague Poliomyelitis, Paralytic [§] Psittacosis Rabies, human Syphilis, primary & secondary Syphilis, congenital, age < 1 year Tetanus Toxic shock syndrome Trichinosis Tuberculosis Tuberculosis Tularemia Typhoid fever Typhus fever, tickborne (RMSF)	15 234 1 - 7 6,071 - 8 78 23 5,129 3 5,129 3 91 38

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending April 23, 1994 (16th Week)

*Updated monthly; last update March 29, 1994. [†]Of 323 cases of known age, 95 (29%) were reported among children less than 5 years of age. [§]No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

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	AIDS*	Aseptic Menin- gitis	Primary	Post-in-	Gono	orrhea	A	B	NA,NB	Unspeci-	Legionel- losis	Lyme Disease
Reporting Area	Cum.	Cum.	Cum.	fectious Cum.	Cum.	Cum.	Cum.	Cum.	Cum.	fied Cum.	Cum.	Cum.
	1994	1994	1994	1994	1994	1993	1994	1994	1994	1994	1994	1994
UNITED STATES	20,445	1,444	160	37	111,295	119,434	5,792	3,374	1,328	117	436	907
NEW ENGLAND Maine	697 28	52 6	5 1	2	2,482 19	2,357 31	100 11	152 4	39	13	15	112
N.H. Vt.	22 10	2 5	-	1	- 8	19 11	2	7	6	-	-	4 1
Mass.	337	18	3	-	918	908	48	138	26	13	11	56
R.I. Conn.	83 217	21	1	1	132 1,405	118 1,270	12 27	3	7	-	4	17 34
MID. ATLANTIC	5,899	145	21	11	14,642	11,881	316	315	170	4	59	572
Upstate N.Y. N.Y. City	537 3,661	53 3	8 1	1	2,717 4,459	2,463 3,595	140 21	111 12	80	-	14	375
N.J. Pa.	1,203 498	89	- 12	- 10	1,511	1,984	82 73	102 90	69 21	- 4	7 38	83 114
E.N. CENTRAL	490 1,670	266	45	8	5,955 20,035	3,839 23,969	528	345	21 92	4	30 114	9
Ohio	296	72	15	-	7,302	7,043	173	65	3	-	65	8
Ind. III.	286 767	55 36	2 13	2	2,502 4,372	2,370 7,854	108 123	62 53	2 7	- 1	14 4	-
Mich. Wis.	230 91	99 4	15	6	5,182 677	4,708 1,994	83 41	114 51	78 2	1	26 5	1
W.N. CENTRAL	426	97	7	1	5,988	6,123	255	182	68	3	57	18
Minn.	106	6	1	-	992 409	803	61 8	18	5	- 2	20	7
lowa Mo.	13 163	34 28	-	-	3,453	546 3,289	128	11 131	6 50	1	26	1 8
N. Dak. S. Dak.	27 4	1	2 1	-	7 45	17 64	1 11	-	-	-	2	-
Nebr.	29	5	2	1	-	182	27 19	9	3	-	8	-
Kans. S. ATLANTIC	84 4,056	23 337	1 27	- 12	1,082 30,871	1,222 32,751	402	13 844	4 305	13	1 109	2 158
Del.	53	1	-	-	555	415	7	11	19	-	1	40
Md. D.C.	298 304	50 12	6	1	5,799 2,047	5,390 1,665	47 9	106 14	11	4	27	42 1
Va. W. Va.	249 7	50 7	10	5	4,147 225	3,219 192	39 3	28 7	14 10	1	2 1	12 3
N.C.	384	50	10	-	7,357	7,358	29	94	22	-	7	19
S.C. Ga.	325 547	9 12	- 1	-	3,863	2,815 4,395	9 34	12 369	1 150	-	1 52	- 37
Fla.	1,889	146	-	6	6,878	7,302	225	203	78	8	18	4
E.S. CENTRAL Ky.	549 105	91 37	17 6	1 1	13,706 1,356	12,278 1,426	144 65	369 24	265 7	1	21 1	4 2
Tenn.	154	22	7	-	4,040	2,988	44	321	256	1	13	1
Ala. Miss.	155 135	23 9	4	-	5,105 3,205	4,833 3,031	18 17	24	2	-	5 2	1
W.S. CENTRAL	2,674	99	6	-	12,669	14,620	849	353	107	27	11	10
Ark. La.	65 304	6 4	- 1	-	2,256 4,004	2,843 3,385	13 31	7 42	2 26	- 1	4	-
Okla.	57	89	- 5	-	494	1,048	69	107 197	57 22	26	7	8 2
Tex. MOUNTAIN	2,248 609	69 47	2	-	5,915 2,687	7,344 3,507	736 1,206	197	116	20	- 24	4
Mont.	8	-	-	-	29	13	9	7	2	-	10	-
ldaho Wyo.	15 5	1	-	-	21 29	40 24	99 6	26 6	36 35	1	- 1	1
Colo. N. Mex.	292 43	7 6	-	-	790 325	1,181 304	72 336	8 67	7 18	3 3	1 1	- 3
Ariz.	124	18	-	-	860	1,228	483	17	4	-	1	-
Utah Nev.	33 89	4 11	- 2	-	105 528	97 620	137 64	11 15	10 4	- 1	1 9	-
PACIFIC	3,865	310	30	2	8,215	11,948	1,992	657	166	46	26	20
Wash. Oreg.	209 103	-	-	-	934 314	1,164 462	124 94	27 14	23 2	- 1	5	-
Calif.	3,477	249	29	1	6,466	10,019	1,691	591	137	43	19	20
Alaska Hawaii	10 66	12 49	1	- 1	267 234	147 156	70 13	5 20	- 4	- 2	- 2	-
Guam	-	-	-	-	31	38	1	-	-	4	-	-
P.R. V.I.	608 24	9	-	-	139 8	163 25	19	94 1	19 -	3	-	-
Amer. Samoa	-	-	-	-	7	7	4	-	-	-	-	-
C.N.M.I.	1	-	-	-	17	22	2	-	-	-	-	-

TABLE II. Cases of selected notifiable diseases, United States, weeks endingApril 23, 1994, and April 24, 1993 (16th Week)

N: Not notifiable U: Unavailable *Updated monthly; last update March 29, 1994. C.N.M.I.: Commonwealth of Northern Mariana Islands

	Measles (Rubeola) Menin-															
	Malaria								Mumps		Pertussi	s	Rubella			
Reporting Area	Cum.	1994	Cum.	1994	Cum.	Cum.	Infections Cum.	1994	Cum.	1994	Cum.	Cum.	1994	Cum.	Cum.	
	1994		1994		1994	1993	1994		1994		1994	1993		1994	1993	
UNITED STATES		29	234	4	15	94	1,012	27	379	38	894	909	4	113	60	
NEW ENGLAND Maine	25 1	-	11	-	-	47	61 8	-	10 3	8	88 2	171 5	-	76	1 1	
N.H. Vt.	3 1	-	-	-	-	- 28	1 1	-	4	4 1	29 10	45 37	-	-	-	
Mass.	8	-	3	-	-	10	28	-	-	-	38	73	-	76	-	
R.I. Conn.	4 8	-	5 3	-	-	1 8	- 23	-	1 2	- 3	2 7	3 8	2	-	-	
MID. ATLANTIC	37	-	22	-	2	9	100	2	36	7	220	147	-	6	15	
Upstate N.Y. N.Y. City	12 2	-	3 1	-	-	1 2	32 3	2	7	5 1	87 50	51 5	-	6	1 8	
N.J.	13	-	18	-	1	6	21	-	-	-	-	26	-	-	5	
Pa.	10	-	-	-	1	-	44	-	29	1	83	65	-	-	1	
E.N. CENTRAL Ohio	29 5	1	9 6	-	3	4	157 38	3	66 8	1 -	143 59	212 77	-	7	2 1	
Ind. III.	6 8	-	-	-	1	-4	40 49	1	5 30	1	31 20	12 36	-	-2	-	
Mich.	8 9	- 1	1	-	1	4	49 14	2	20	-	20	14	-	2 5	-	
Wis.	1	-	2	-	1	-	16	-	3	-	12	73	-	-	1	
W.N. CENTRAL Minn.	16 4	-	-	-	1	2	73 7	4 4	17 4	11 8	39 16	53 20	-		1	
lowa	3	-	-	-	-	-	6	-	4	1	3	1	-	-	-	
Mo. N. Dak.	7	-	-	-	-	1	38	-	7 1	1 -	11 1	16 2	-	-	1	
S. Dak. Nebr.	1	-	-	-	- 1	-	5	-	- 1	- 1	- 2	1 4	-	-	-	
Kans.	1	-	-	-	-	1	6 11	-	-	-	6	4 9	-		-	
S. ATLANTIC	67	-	9	-	-	14	169	7	73	4	126	71	-	5	5	
Del. Md.	2 30	-	-	-	-	- 1	- 13	2	- 17	2	42	- 28	-	-	2 1	
D.C.	7 8	-	- 1	-	-	- 1	1 25	- 1	- 17	-	3 13	- 6	-	-	-	
Va. W. Va.	-	-	-	-	-	-	8	-	3	-	2	o 2	-	-	-	
N.C. S.C.	2 2	-	-	-	-	-	32 5	4	24 5	1	35 8	11 5	-	-	-	
Ga.	7	-	-	-	-	-	30	-	2	1	7	9	-	-	-	
Fla.	9	-	8	-	-	12	55	-	5	-	16	10	-	5	2	
E.S. CENTRAL Ky.	8 2	-	27	-	1	-	72 15	-	4	-	24 3	41 8	-		-	
Tenn. Ala.	4 1	-	27	-	1	-	20 31	-	-	-	13 7	20 9	-	-	-	
Miss.	1	-	-	-	-	-	6	-	4	-	1	4	-	-	-	
W.S. CENTRAL	8	2	7	2	4	1	131	8	89	5	31	15	3	7	8	
Ark. La.	-	-	-	-	- 1	- 1	18 20	- 1	- 8	- 1	-	1 4	-	-	-	
Okla. Tex.	3 5	- 2	-7	- 2 [§]	- 3	-	11 82	- 7	21 60	- 4	20 7	10	- 3	4 3	1 7	
MOUNTAIN	9	26	, 143	1	1	2	68	2	10	2	, 52	- 58	-	1	4	
Mont.	-	-	-	-	-	-	2	-	-	-	2	-	-	-	-	
ldaho Wyo.	2	-	-	-	-	-	10 2	-	3	2	22	11 1	2	1	1	
Colo.	1 2	10	10	1 [†]	1	2	6 5	N	- N	-	9	21 14	-	-	-	
N. Mex. Ariz.	1	-	-	-	-	-	29	-	N -	-	6 9	7	-	-	-	
Utah Nev.	3	16	133	-	-	-	10 4	1	3 3	-	4	4	-	-	2 1	
PACIFIC	83	-	6	1	3	15	181	1	74	-	171	141	1	11	24	
Wash.	2	-	-	-	-	-	15	-	2	-	11	8	-	-	-	
Oreg. Calif.	5 66	-	- 6	-	2	- 4	27 133	N	N 63	-	20 136	- 126	- 1	- 10	1 15	
Alaska Hawaii	- 10	-	-	- 1 [†]	- 1	- 11	1 5	- 1	2 7	-	- 4	1 6	-	- 1	1 7	
Guam	-	U	- 1	U	-	-	-	U	2	U	-	-	U	-	-	
P.R.	-	-	13	-	-	145	3	-	2	-	1	-	-	-	-	
V.I. Amer. Samoa	-	- U	-	- U	-	- 1	-	- U	- 1	- U	- 1	- 2	Ū	-	-	
Amer. Sumou		0	-	0	-	1	-	0	1	0		~	0	-	-	

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 23, 1994, and April 24, 1993 (16th Week)

*For measles only, imported cases include both out-of-state and international importations. N: Not notifiable U: Unavailable [†] International [§] Out-of-state

MMWR

Reporting Area	Syr (Primary &	Syphilis (Primary & Secondary)		Tuber	culosis	Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal	
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	
UNITED STATES	6,071	8,616	78	5,129	6,004	3	91	38	1,762	
NEW ENGLAND	60	145	2	98	95	-	10	2	569	
Maine N.H.	1	2 13	-	- 2	7 5	-	-	-	- 70	
Vt.	-	-	-	-	1	-	-	-	56	
Mass. R.I.	17 5	67 3	2	46 11	32 18	-	6 1	2	214 5	
Conn.	37	60	-	39	32	-	3	-	224	
MID. ATLANTIC	434	749	13	866	1,222	-	17	-	180	
Upstate N.Y. N.Y. City	54 218	71 475	7	65 490	176 735	-	3 7	-	-	
N.J.	39	142	-	182	113	-	7	-	100	
Pa.	123	61	6	129	198	-	-	-	80	
E.N. CENTRAL Ohio	722 324	1,376 362	19 8	554 68	631 86	-	22 1	4	8	
Ind.	78	124	0 1	45	59	-	1	-	-	
III. Mich	172	537	4	296	342	-	11	1	3	
Mich. Wis.	98 50	198 155	6	131 14	121 23	-	3 6	1	2 3	
W.N. CENTRAL	385	570	10	129	105	3	-	1	48	
Minn.	14	32	-	33 9	8	-	-	-	5	
lowa Mo.	15 331	32 433	6 3	63	8 60	- 3	-	1	21 5	
N. Dak.	-	-	-	1	4	-	-	-	-	
S. Dak. Nebr.	-	- 8	- 1	6 4	6 5	-	-	-	2	
Kans.	25	65	-	13	14	-	-	-	15	
S. ATLANTIC	1,805	2,264	5	784	1,267	-	17	26	597	
Del. Md.	7 82	41 114	-	- 96	9 121	-	1 3	-	6 189	
D.C.	78	140	-	39	50	-	1	-	2	
Va. W. Va.	211 6	189 1	-	104 26	141 24	-	1	1	130 22	
N.C.	581	610	1	108	131	-	-	10	60	
S.C. Ga.	217 335	363 397	-	119 270	112 235	-	-	- 15	57 123	
Fla.	288	409	4	22	444	-	11	-	8	
E.S. CENTRAL	1,218	994	1	277	377	-	-	2	31	
Ky. Tenn.	76 299	79 213	- 1	94 1	94 82	-	-	- 1	2	
Ala.	229	262	-	124	133	-	-	-	29	
Miss.	614	440	-	58	68	-	-	1	-	
W.S. CENTRAL Ark.	1,217 140	1,947 375	-	594 81	471 46	-	4	2 1	233 11	
La.	595	754	-	-	-	-	2	-	30	
Okla. Tex.	15 467	117 701	-	58 455	47 378	-	2	1	16 176	
MOUNTAIN	91	75	4	130	167	-	6	1	24	
Mont. Idaho	- 1	-	- 1	- 5	5 3	-	-	-	-	
Wyo.	1 49	2 23	- 1	2 1	1	-	2	1	5	
Colo. N. Mex.	5	12	-	26	28 18	-	-	-	-	
Ariz.	19	31	-	67	70	-	1	-	18	
Utah Nev.	5 11	2 5	2	- 29	9 33	-	1 2	-	- 1	
PACIFIC	139	496	24	1,697	1,669	-	15	-	72	
Wash. Orog	10	18 26	-	63	78	-	1	-	-	
Oreg. Calif.	2 125	448	21	41 1,505	27 1,457	-	13	-	- 50	
Alaska	1	2	-	21	15	-	-	-	22	
Hawaii	1	2	3	67 7	92 24	-	1	-	-	
Guam P.R.	1 90	173	-	-	24 64	-	-	-	- 21	
V.I.	9	16	-	-	2	-	-	-	-	
Amer. Samoa C.N.M.I.	- 1	-	-	- 14	1 7	-	1 1	-	-	

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 23, 1994, and April 24, 1993 (16th Week)

U: Unavailable

	All Causes, By Age (Years)								All Causes, By Age (Years)						P&I [†]
Reporting Area	All Ages	≥65	45-64	25-44	1-24	<1	P&l [†] Total	Reporting Area	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND Boston, Mass. Bridgeport, Conn. Cambridge, Mass. Fall River, Mass. Hartford, Conn. Lowell, Mass. Lynn, Mass. New Bedford, Mass New Haven, Conn. Providence, R.I. Somerville, Mass. Springfield, Mass. Waterbury, Conn.	468 600 225 233 311 44 30 10 5. 23 47 35 7 7 49 24	328 42 17 20 25 24 22 7 16 28 26 28 26 33 19	81 12 5 2 4 8 4 1 3 13 3 5	31 2 2 1 7 1 - 3 3 4 - 5	13 2 1 2 1 1 2 2 2 -	15 2 1 - 5 1 1 - 1 - 2	27 5 2 1 - 5 3 1 2 1 - 1	S. ATLANTIC Atlanta, Ga. Baltimore, Md. Charlotte, N.C. Jacksonville, Fla. Miami, Fla. Norfolk, Va. Richmond, Va. Savannah, Ga. St. Petersburg, Fla. Tampa, Fla. Washington, D.C. Wilmington, Del.	158 118 6	780 96 124 59 45 46 57 41 87 115 61 4	261 35 45 29 20 16 13 19 12 14 25 32 1	157 21 44 11 14 14 7 9 7 4 13 12 1	44 7 4 2 5 4 2 2 5 -	30 4 2 1 1 2 3 2 8	83 1 14 17 6 5 11 7 6 12 4
Worcester, Mass. MID. ATLANTIC Albany, N.Y. Allentown, Pa. Buffalo, N.Y. Camden, N.J. Elizabeth, N.J. Erie, Pa.§	60 2,852 58 25 105 33 19 47	42 1,905 44 21 81 22 12 34	12 522 7 1 16 6 3 11	2 301 3 3 2 2 1	2 65 3 - 2 - 2	2 59 - 3 3 - 1	5 141 5 1 3 2 - 1	E.S. CENTRAL Birmingham, Ala. Chattanooga, Tenn. Knoxville, Tenn. Lexington, Ky. Memphis, Tenn. Mobile, Ala. Montgomery, Ala. Nashville, Tenn.	786 128 74 81 79 151 85 52 136	499 63 55 47 101 57 35 88	179 37 11 16 22 32 23 11 27	60 11 4 9 5 12 4 3 12	28 8 4 1 4 1 1 5	20 9 2 - 1 2 - 2 4	69 1 10 9 13 12 14 -
Jersey City, N.J. New York City, N.Y. Newark, N.J. Paterson, N.J. Philadelphia, Pa. Pittsburgh, Pa.§ Reading, Pa. Rochester, N.Y. Schenectady, N.Y. Scranton, Pa.§ Syracuse, N.Y. Trenton, N.J. Utica, N.Y. Yonkers, N.Y.	45 1,353 68 34 621 53 136 29 31 103 34 20 25	34 854 28 22 427 38 103 23 23 71 22 17 17	5 250 20 8 116 11 25 3 3 22 5 3 6	6 187 11 3 53 2 5 3 2 5 7 2 2	36 5 10 2 - 2 - 2 -	26 4 15 1 1 5 - - - - - - - - - - -	51 6 1 39 2 12 1 4 1 2	W.S. CENTRAL Austin, Tex. Baton Rouge, La. Corpus Christi, Tex. Dallas, Tex. El Paso, Tex. Ft. Worth, Tex. Houston, Tex. Little Rock, Ark. New Orleans, La. San Antonio, Tex. Shreveport, La. Tulsa, Okla.	1,418 61 209 46 108 385 74 77 138 103 91	918 40 44 126 28 69 250 44 52 84 62 75	266 13 10 41 11 19 83 14 13 29 16 4	154 5 3 28 4 16 39 6 5 17 18 8	41 2 1 9 1 3 7 4 3 3 4 3 3 4 3	39 2 1 3 5 2 1 6 6 4 5 3 1	89 5 2 5 5 35 7 10 13
E.N. CENTRAL Akron, Ohio Canton, Ohio Chicago, III. Cincinnati, Ohio Celveland, Ohio Columbus, Ohio Dayton, Ohio Detroit, Mich. Evansville, Ind. Fort Wayne, Ind. Gary, Ind. Grand Rapids, Mict Indianapolis, Ind. Madison, Wis. Milwaukee, Wis. Peoria, III. Rockford, III. South Bend, Ind. Toledo, Ohio Youngstown, Ohio W.N. CENTRAL Des Moines, Iowa Duluth, Minn. Kansas City, Kans. Kansas City, Kans. Kansas City, Mo. Lincoln, Nebr. Minneapolis, Minn. Omaha, Nebr. St. Paul, Minn.	192 84 128 43 60 57 93 56 715 56 23 23 97 32		12 23 15	286 2 139 6 21 20 5 34 - 6 6 2 1 7 9 1 2 4 6 5 49 3 - 4 6 1 8 6 9 7 5	142 933 837222 - 142341 - 3 2522 195512	91 1 455 5 12 6 - 7 7 1 2 2 3 3 1 - 1 2 2 3 3 1 - - - - - - - - - - - - -	162 40 82 911 132 4 71 932 8351 415 1560 554 -	MOUNTAIN Albuquerque, N.M. Colo. Springs, Colo Denver, Colo. Las Vegas, Nev. Ogden, Utah Phoenix, Ariz. Pueblo, Colo. Salt Lake City, Utah Tucson, Ariz. PACIFIC Berkeley, Calif. Fresno, Calif. Berkeley, Calif. Glendale, Calif. Honolulu, Hawaii Long Beach, Calif. Los Angeles, Calif. Portland, Oreg. Sacramento, Calif. San Jose, Calif. San Jose, Calif. San Jose, Calif. San Jose, Calif. San Jose, Calif. Santa Cruz, Calif. Seattle, Wash. Spokane, Wash. Tacoma, Wash. TOTAL	0. 40 124 184 27 170 23 88 146 1,667 14 112 16 67 75 421 31 101 188 167	8 71 8 49 48 275 26 77 127 95 U 124 27 85 39 64	168 19 7 20 43 8 29 3 16 23 271 3 17 8 10 12 71 2 10 34 34 U 36 6 11 5 12 2,288	71 6 5 14 15 17 2 6 6 182 3 13 - 3 9 5 5 1 6 18 29 U 12 3 21 3 6 1,291	23 6 2 4 6 - 1 4 - 1 4 6 - 1 4 9 1 5 4 7 U 1 - 6 2 - 427	13 3 1 6 2 1 3 6 5 4 2 2 1 3 5 2 U 7 3 1 1 3 3 2 4	83 5 5 16 10 4 24 11 123 10 19 2 5 10 19 5 3 14 9 U 22 6 4 2 12 818

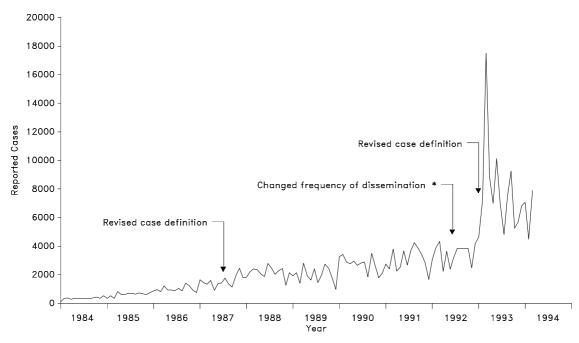
TABLE III. Deaths in 121 U.S. cities,* week ending April 23, 1994 (16th Week)

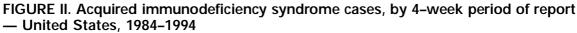
*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

[†]Pneumonia and influenza.

⁹Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks. ¹Total includes unknown ages.

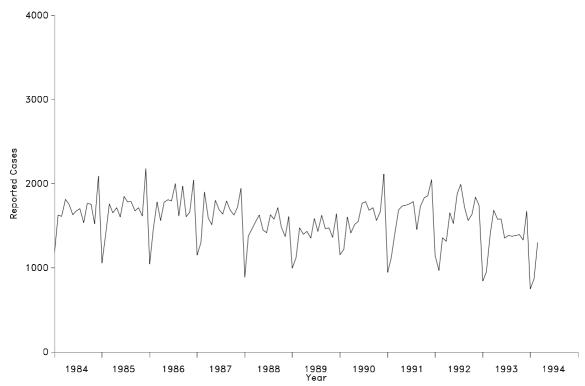
U: Unavailable.

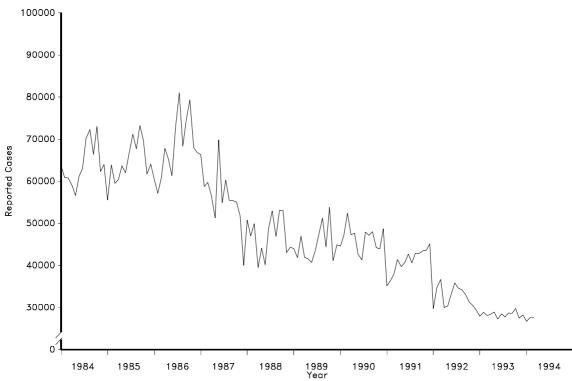


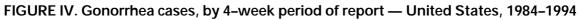


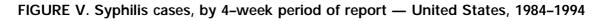
*Change to reflect Notice to Readers, Vol. 41, No. 18, pg. 325.

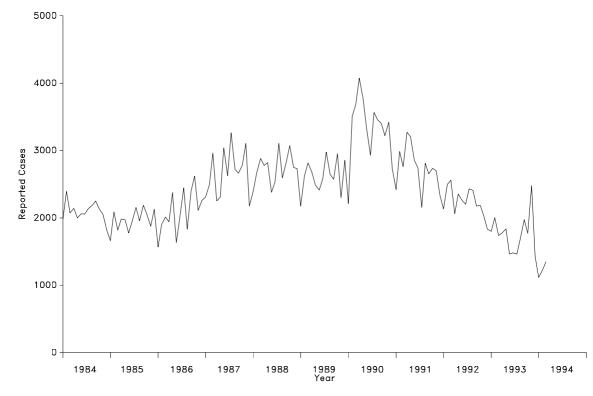
FIGURE III. Tuberculosis cases, by 4-week period of report — United States, 1984-1994











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