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MORBIDITY AND MORTALITY WEEKLY REPORT

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Update: Outbreaks of Cyclosporiasis — United States, 1997

During April and May 1997, CDC received reports of clusters of cases of cyclosporiasis in the United States (1). This report describes the preliminary findings of an investigation of an outbreak in New York and summarizes the findings from on-going investigations in other states.

New York

On May 15, the Westchester County Health Department was notified of two laboratory-confirmed cases of cyclosporiasis and other cases of diarrheal illness among persons who attended a wedding reception on April 20 at a private residence in the county. A case of cyclosporiasis was defined as onset of diarrhea (three or more loose stools during a 24-hour period) 1–14 days after the reception. Of the 183 persons who attended the reception, 154 (84%) were interviewed, and 140 were included in this analysis (persons who had loose stools that did not meet the case definition were excluded). Of the 140 persons, 20 (14%) had illness that met the case definition; four cases were laboratory confirmed. The median incubation period was 8 days (range: 3–11 days), and for 19 persons, the duration of diarrheal illness was ≥ 3 days.

Eating raspberries was the exposure most strongly associated with risk for illness in univariate analysis and was the only exposure significantly associated with risk for illness in multivariate logistic regression analysis. Sixteen (36%) of the 45 persons who ate raspberries became ill, compared with three (4%) of the 85 persons who did not eat raspberries (univariate relative risk=10.1; 95% confidence interval=3.1–32.8). The raspberries had not been washed.

Other Investigations

CDC has received reports of eight event-associated (e.g., reception) clusters of cases of cyclosporiasis from five states (California, Florida, Nevada, New York [includes Westchester County], and Texas) and a report of cases among persons who, during March 29–April 5, had been on a cruise ship that left from Florida. The most recent of the eight events occurred on May 8. Approximately 90 event-associated cases of infection have been laboratory confirmed.

Fresh berries were served at six of the eight events. Raspberries were included in mixtures of various types of berries at four events, were served separately from other berries at one event (the event in Westchester County), and were the only type of berry

Cyclosporiasis Outbreaks — Continued

served at one event (in Nevada). Eating the food items that included raspberries was significantly associated with risk for illness for four events, including the two events at which raspberries could be distinguished from other berries (Westchester County and Nevada events); for one of the other two events, all 10 persons ate the berry mixture that was served and became ill. At one event where the implicated food item included a mixture of berries, the source of the raspberries was Guatemala; preliminary trace-back data for the other events at which raspberries were served indicate that both Guatemala and Chile may be sources (i.e., each country was the source of at least one of the shipments of raspberries that could have been used).

State and local health departments, CDC, and the Food and Drug Administration (FDA) are continuing the investigations to identify the vehicles of infection, to trace the sources of implicated foods, and to determine whether transmission is ongoing.

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Editorial Note: The preliminary findings of the investigations described in this report suggest that raspberries imported from Guatemala and possibly from Chile were the likely vehicle of infection for some of the outbreaks of cyclosporiasis during April and May. In the spring and summer of 1996, an outbreak of cyclosporiasis in the United States and Canada was linked to eating raspberries imported from Guatemala (2). However, the mode of contamination of the implicated raspberries in that outbreak was not determined—in part because the methods for testing produce and other environmental samples for *Cyclospora* are insensitive.

Produce should always be thoroughly washed before it is eaten. This practice should decrease, but may not eliminate, the risk for transmission of *Cyclospora*. Because raspberries are fragile and replete with crevices (3), even thorough washing may not eliminate contamination of the fruit. State and local health departments, CDC, and FDA are evaluating the findings from the investigations to determine the need for additional public health measures.

Health-care providers should consider *Cyclospora* infection in persons with prolonged diarrheal illness and specifically request laboratory testing for this parasite. Cases should be reported to local and state health departments; health departments that identify cases of cyclosporiasis should contact CDC's Division of Parasitic Diseases, National Center for Infectious Diseases, telephone (770) 488-7760.

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Dog-Bite-Related Fatalities — United States, 1995–1996

From 1979 through 1994, attacks by dogs resulted in 279 deaths of humans in the United States (1,2). Such attacks have prompted widespread review of existing local and state dangerous-dog laws, including proposals for adoption of breed-specific restrictions to prevent such episodes (3). To further characterize this problem and the involvement of specific breeds, CDC analyzed data from the Humane Society of the United States (HSUS) and media accounts in the NEXIS database*. This report presents three recent cases of dog-bite-related fatalities (DBRFs), summarizes characteristics of such deaths during 1995–1996, and provides breed-specific data for DBRFs during 1979–1996. The findings in this report indicate that most DBRFs occurred among children and suggest approaches for prevention.

In January 1995, a 2-year-old boy in South Dakota wandered into a neighbor's yard, where he was attacked and killed by two chained wolf-German shepherd hybrids. In September 1995, a 3-week-old girl in Pennsylvania was killed in her crib by the family Chow Chow while her parents slept in the next room. In March 1996, an 86-year-old woman in Tennessee went outside of her home to check the weather and was fatally mauled by two rottweilers owned by a neighbor; the dogs had attacked and injured the woman 1 month before the fatal attack.

The HSUS attempts to identify all DBRFs (1,2) and maintains a registry of these incidents. A DBRF was defined as a death caused by acute trauma from a dog attack. Case reports in the registry include details such as date of death, age and sex of decedent, city and state of attack, number and breeds of dogs involved, and circumstances. To supplement HSUS reports, CDC included data from the NEXIS database and death certificates. However, death-certificate data were not available for 1995–1996. Deaths associated with infection secondary to dog bites were excluded.

Data from HSUS and NEXIS were merged to maximize detection of cases and avoid duplicate reports. Because news media accounts can inaccurately report breeds of dogs involved in DBRFs, only breed data from the HSUS were used (4). When multiple dogs of the same breed were involved in a fatality, that breed was counted only once. When crossbred animals were involved in a fatality, each breed in the dog's parentage was counted once. Dogs were also classified as on or off the owner's property and whether they were restrained (e.g., chained or leashed) at the time of the attack.

During 1995–1996, at least 25 persons died as the result of dog attacks (11 in 1995 and 14 in 1996). Of the 25 DBRFs, 20 (80%) occurred among children (three were aged ≤ 30 days [neonates], one was aged 5 months, 10 were aged 1–4 years, and six were aged 5–11 years), and five occurred among adults (ages 39, 60, 75, 81, and 86 years). Most (18 [72%]) DBRFs occurred among males.

Of 23 deaths with sufficient information for classification, seven (30%) involved an unrestrained dog off the owner's property, five (22%) involved a restrained dog on the owner's property, and 11 (48%) involved an unrestrained dog on the owner's property. Of the 25 deaths, nine (36%) involved one dog, nine (36%) involved two dogs, two (8%) involved three dogs, and five (20%) involved six to 11 dogs. All the attacks by unrestrained dogs off the owner's property involved more than one dog. Of the three

* An on-line service containing information from newspapers, magazines, wire services, and broadcast transcripts.

TABLE 1. Dog breeds and crossbreeds* involved in dog-bite-related fatalities, by 2-year period — United States, 1979–1996†

Category	1979–1980	1981–1982	1983–1984	1985–1986	1987–1988	1989–1990	1991–1992	1993–1994	1995–1996	Total
Breed										
“Pit bull”	2	5	10	9	12	8	6	5	3	60
Rottweiler	0	0	1	1	3	1	3	10	10	29
German shepherd	2	1	5	1	1	5	2	0	2	19
“Husky”	2	1	2	2	0	2	2	1	2	14
Alaskan malamute	2	0	3	1	0	2	3	1	0	12
Doberman Pinscher	0	1	0	2	2	2	1	0	0	8
Chow Chow	0	1	0	0	0	2	3	0	2	8
Great Dane	3	1	0	0	0	0	0	1	1	6
St. Bernard	1	2	1	0	0	0	0	0	0	4
Akita	0	0	0	0	0	1	1	2	0	4
Crossbreed										
Wolf hybrid	0	1	1	2	1	4	1	2	2	14
German shepherd	0	2	0	2	2	2	0	1	2	11
“Pit bull”	0	1	0	3	2 [§]	3	1	1	0	10[§]
“Husky”	0	1	1	2	1	1	0	0	0	6
Alaskan malamute	0	0	0	0	0	2	1	0	0	3
Rottweiler	0	0	0	0	1 [§]	1	0	1	1	3[§]
Chow Chow	0	0	0	0	0	1	0	1	1	3
No. incidents for which breed known	10	20	27	24	22	35	24	25	22	199

*Data shown only for breeds and crossbreeds involved in four or more fatalities. Each breed contributing to the crossbreed is counted only once.

†For 1979–1994, data obtained from the Humane Society of the United States registry, NEXIS database accounts, and death certificates. For 1995–1996, data from death certificates were not available.

§One fatality also involved a single breed.

Dog Bites — Continued

breed-specific population data (i.e., number of deaths involving a given breed divided by number of dogs of that breed). However, such denominator data are not available, and official registration or licensing data cannot be used because owners of certain breeds may be less likely than those owning other breeds to register or license their animals (3).

Three categories of strategies can be considered for preventing dog bites:

- 1. Owner and public education.** Dog owners, through proper selection, socialization, training, care, and treatment of a dog, can reduce the likelihood of owning a dog that will eventually bite (7). Male and unspayed/unneutered dogs are more likely to bite than are female and spayed/neutered dogs (7). Educational and prevention efforts should be directed at parents and children. Veterinarians and pediatricians should address strategies for bite prevention, including the need for appropriate supervision of children. Other strategies include dissemination of information on preventing bites (see box), school-based educational programs on bite prevention and canine behavior, and educational programs regarding responsible dog selection, ownership, and training.
- 2. Animal control at the community level.** Animal-control programs should be supported, and laws for regulating dangerous or vicious dogs should be promulgated and enforced vigorously (8). For example, in this report, 30% of DBRFs resulted from groups of owned dogs that were free roaming off the owner's property. Some of these deaths might have been prevented through more stringent animal-control laws and enforcement. Although some breeds were disproportionately represented in the fatal attacks described in this report, the representation of breeds changes over time (Table 1). As a result, targeting a specific breed may be unproductive; a more effective approach may be to target chronically irresponsible dog owners (9).
- 3. Bite reporting.** Evaluation of prevention efforts requires improved surveillance for dog bites. Dog bites should be reported as required by local or state ordinances, and reports of such incidents should include information about the circumstances of the bite; ownership, breed, sex, age, spay/neuter status, and history of prior aggression of the animal; and the nature of restraint before the bite incident.

Dogs provide many health and social benefits (10). Most of the approximately 55 million dogs in the United States never bite or kill humans. However, the findings in this report indicate that DBRFs continue to occur and that most are preventable.

HSUS and the U.S. Postal Service have designated June 9–13, 1997, as National Dog Bite Prevention Week. Additional information about preventing dog bites is available from HSUS, 100 L Street, NW, Washington, DC 20037; telephone (202) 452-1100; or on the World-Wide Web at <http://www.hsus.org>.

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Measures for Preventing Dog Bites

- Realistically evaluate environment and lifestyle and consult with a professional (e.g., veterinarian, animal behaviorist, or responsible breeder) to determine suitable breeds of dogs for consideration.
- Dogs with histories of aggression are inappropriate in households with children.
- Be sensitive to cues that a child is fearful or apprehensive about a dog and, if so, delay acquiring a dog.
- Spend time with a dog before buying or adopting it. Use caution when bringing a dog or puppy into the home of an infant or toddler.
- Spay/neuter virtually all dogs (this frequently reduces aggressive tendencies).
- Never leave infants or young children alone with any dog.
- Properly socialize and train any dog entering the household. Teach the dog submissive behaviors (e.g., rolling over to expose abdomen and relinquishing food without growling).
- Immediately seek professional advice (e.g., from veterinarians, animal behaviorists, or responsible breeders) if the dog develops aggressive or undesirable behaviors.
- Do not play aggressive games with your dog (e.g., wrestling).
- Teach children basic safety around dogs and review regularly:
 - Never approach an unfamiliar dog.
 - Never run from a dog and scream.
 - Remain motionless when approached by an unfamiliar dog (e.g., “be still like a tree”).
 - If knocked over by a dog, roll into a ball and lie still (e.g., “be still like a log”).
 - Never play with a dog unless supervised by an adult.
 - Immediately report stray dogs or dogs displaying unusual behavior to an adult.
 - Avoid direct eye contact with a dog.
 - Do not disturb a dog who is sleeping, eating, or caring for puppies.
 - Do not pet a dog without allowing it to see and sniff you first.
 - If bitten, immediately report the bite to an adult.

Source: Reference 2.

Update: Progress Toward Poliomyelitis Eradication — South East Asia Region, 1995–1997

In 1988, the World Health Assembly established the goal of global poliomyelitis eradication by the year 2000. Since then, substantial progress has been reported from all World Health Organization (WHO) regions by implementing strategies to prevent, detect, and interrupt transmission of poliovirus (1). In WHO's South-East Asia Region* (SEAR), the successful application of these strategies has resulted in a 96% decrease in the number of annually reported polio cases during 1988–1996 (from 25,711 cases to 1116 cases). Acceleration of intensified surveillance continues to be critically important for identifying the remaining reservoirs of poliovirus circulation for targeted mass vaccination campaigns. This report summarizes data on progress in SEAR toward polio eradication as of April 1, 1997, and updates previous reports (2–4).

Vaccination Coverage

Routine vaccination. During 1986–1995, all countries in SEAR implemented the Expanded Program on Immunization. During 1986–1990, overall coverage in SEAR with three doses of oral poliovirus vaccine (OPV3) among children aged <1 year increased from 42% to 82% and, during 1991–1995, coverage ranged from 85% to 91%.

Supplementary vaccination. In 1994, annual National Immunization Days (NIDs)[†] were first held in Thailand, followed in 1995 by Bangladesh, Bhutan, India, Indonesia, and Sri Lanka, and in 1996 by the Democratic People's Republic (DPR) of Korea, Myanmar, and Nepal. South Asia Association for Regional Cooperation (SAARC) member countries in the WHO South-East Asia and Eastern Mediterranean regions coordinated NIDs during December 1996–January 1997. In SEAR, supplementary doses of OPV were administered during this period to 165 million children aged <5 years during NIDs conducted simultaneously in six (Bangladesh, Bhutan, India, Myanmar, Nepal, and Thailand) of the region's 10 countries.

Incidence of Polio

During 1988–1996, the annual number of reported polio cases in SEAR decreased by 96% (from 25,711 cases to 1116 cases). The cases reported in SEAR in 1996 (1116) accounted for 30% of the worldwide burden of paralytic poliomyelitis (3755) and, in 1988 and 1994, for 73% and 67% of cases worldwide, respectively. Five countries in the region (Bangladesh, India, Indonesia, Myanmar, and Nepal) accounted for 99% (1109 of 1116) of the total number of cases reported in the region in 1996 (Table 1). From 1994 (implementation of the first NIDs in the region [Thailand]) to 1996, reported polio cases decreased by 78% (from 5118 cases to 1116 cases).

The substantial decline in reported cases primarily reflects improved control of polio in India (1996 population: 952,969,000 [76% of the region's population]). Following the implementation of India's first NIDs during December 1995–January 1996, reported cases decreased by 69% from 1995 to 1996 (from 3263 cases to 1005 cases) (Figure 1).

* Member countries are Bangladesh, Bhutan, Democratic People's Republic (DPR) of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, and Thailand.

[†] Mass campaigns over a short period (days to weeks) in which two doses of OPV are administered to all children in the target age group, regardless of previous vaccination history, with an interval of 4–6 weeks between doses.

TABLE 1. Number of reported cases of acute flaccid paralysis (AFP) and confirmed poliomyelitis* and key surveillance indicators, by country — South-East Asia Region[†], World Health Organization (WHO), 1995–1996

Country	1995						1996					
	No. AFP cases	No. confirmed cases		AFP rate [§]		% AFP cases with two stool specimens [¶]	No. AFP cases	No. confirmed cases		AFP rate		% AFP cases with two stool specimens
		Clinical	Wild virus isolated	Total	Nonpolio			Clinical	Wild virus isolated	Total	Nonpolio	
Bangladesh	108	49	2	0.23	0.12	NR**	87	24	10	0.18	0.13	16
DPR Korea ^{††}	12	7	2	0.17	0.07	NR	13	6	4	0.19	0.10	43
India ^{§§}	3263	3263	313	2.20	0	NR	1005	1005	110	0.30	0	NR
Indonesia	22	12	2	0.03	0.01	NR	68	63	0	0.11	0.01	42
Myanmar	7	7	0	0.04	0	NR	15	8	0	0.09	0.04	23
Nepal	15	9	7	0.16	0.06	NR	11	9	1	0.12	0.02	50
Sri Lanka	94	0	0	1.67	1.67	44	96	0	0	1.72	1.72	61
Thailand	122	2	2	0.74	0.73	75	86	1	1	0.56	0.52	40
Total	3643	3349	328	—	—	—	1381	1116	126	—	—	—

*A confirmed case of polio is defined as AFP and at least one of the following: 1) laboratory-confirmed wild poliovirus infection, 2) residual paralysis at 60 days, 3) death, or 4) no follow-up investigation at 60 days.

[†]Bhutan and Maldives were excluded from this analysis because both are polio-free countries and have population sizes too small for meaningful analysis of nonpolio AFP data.

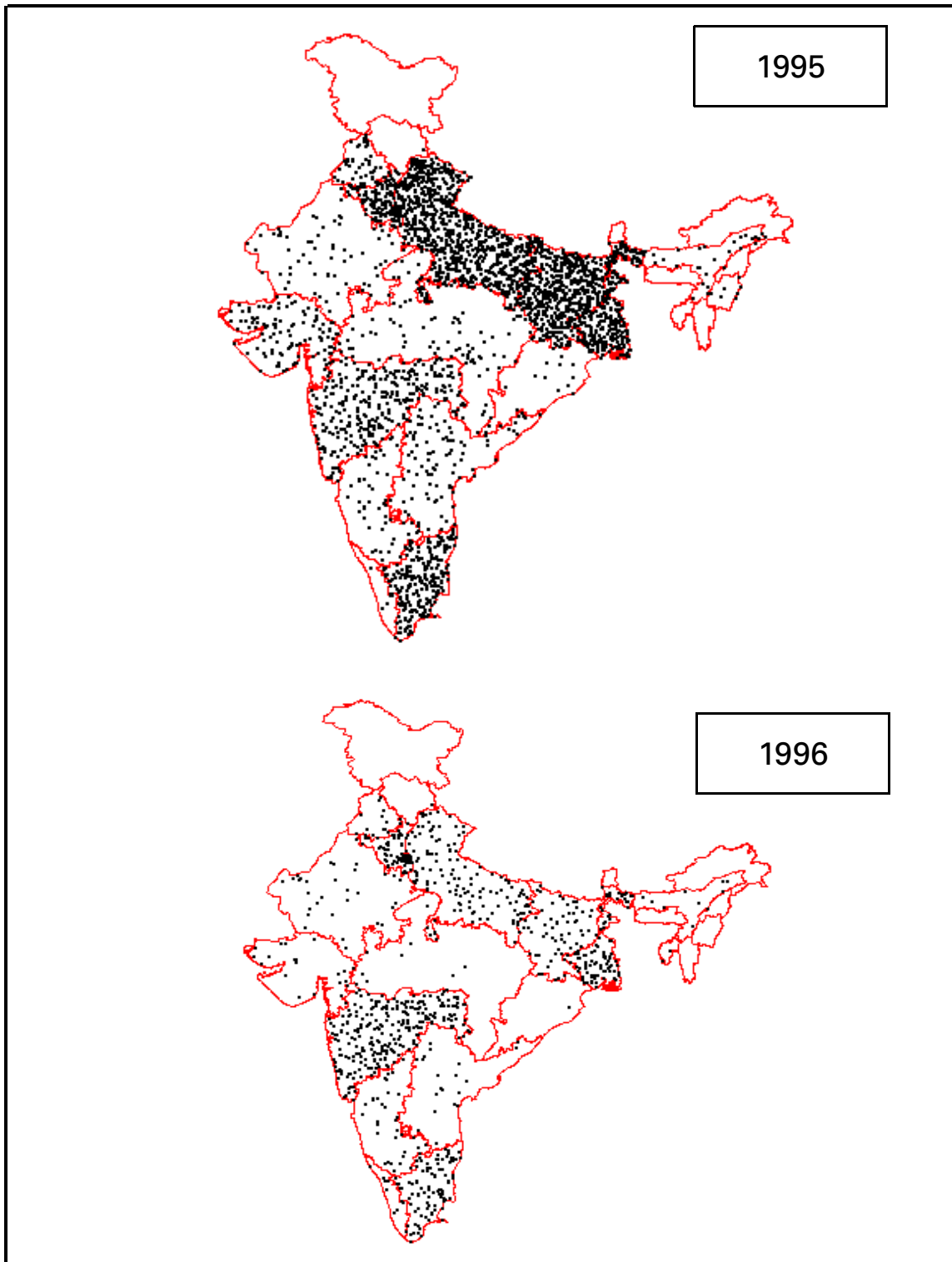
[§]Number of AFP cases per 100,000 population aged <15 years. Expected rate is ≥1 case per 100,000 nonpolio AFP cases per year.

[¶]Two stool specimens collected at an interval of 24–48 hours within 14 days of paralysis onset from ≥80% of AFP cases.

**Not reported.

^{††}Democratic People's Republic of Korea.

^{§§}Source: Routine clinical polio surveillance, Ministry of Health and Family Welfare, Government of India. Implementation of AFP reporting is under way.

*Polio Eradication — Continued***FIGURE 1. Reported cases of poliomyelitis,* by state — India, 1995 and 1996†**

*n=3263 for 1995 and n=1005 for 1996.

†One dot=one case. Dots are randomly distributed within borders of states.

Polio Eradication — Continued

During 1996, six other countries reported polio cases, including Indonesia (63 cases [6% of the regional total]), Bangladesh (24 cases [2%]), Myanmar (11 [1%]), Nepal (nine [<1%]), DPR Korea (six [<1%]), and Thailand (one [<1%]); three countries (Bhutan, Maldives, and Sri Lanka) reported zero polio cases. Bhutan (1996 population: 1,634,000; last reported polio case was in 1986) and Maldives (1996 population: 251,000; last reported case [imported] was in 1994) have implemented "zero case" reporting[§] for cases of acute flaccid paralysis (AFP) from all reporting units. Sri Lanka, which has maintained intensified surveillance[¶] since 1991, last reported polio cases in 1993.

Surveillance

By 1995, all SEAR countries were conducting surveillance for clinically confirmed paralytic poliomyelitis; however, only two countries (Sri Lanka and Thailand) had established surveillance for AFP. By 1996, all member countries had initiated procedures for the mandatory reporting and investigation of all cases of AFP in children aged <15 years. In some countries (Bangladesh, India, Indonesia, Myanmar, and Nepal), intensive training has been instituted for public health officials and physicians in clinical practice regarding immediate reporting and investigation of all AFP cases.

In 1996, Sri Lanka was the only country to achieve or exceed the WHO-established minimum AFP reporting rate indicative of a sensitive surveillance system (≥ 1 non-polio AFP case per 100,000 population aged <15 years); the nonpolio AFP rate reported for Sri Lanka was 1.7. No country in the region has achieved the WHO-recommended target of two stool specimens collected at a 24- to 48-hour interval within 14 days of paralysis onset from at least 80% of AFP cases; the proportion of cases in 1996 with two stools collected within 14 days ranged from 16% (Bangladesh) to 61% (Sri Lanka).

Virologic Investigations

Enterovirus isolation, identification, and intratypic differentiation is performed by the SEAR Poliovirus Laboratory network** on stool specimens collected from AFP cases. Based on an expected nonpolio AFP rate of at least 1 case per 100,000 population aged <15 years, the minimum expected number of cases in SEAR would be 5033 per year. However, in 1996, a total of 1381 AFP cases were reported from all countries in the region; of these, 1116 were classified as confirmed polio. Virologic investigations were conducted for 978 (71%) of the 1381 reported AFP cases. Of these, 106 (11%) were positive for wild poliovirus type 1; five (0.5%), for wild poliovirus type 2; and 11 (1%), for wild poliovirus type 3.

In 1996, wild poliovirus was isolated from stool specimens from 126 AFP cases^{††} in the region; of these, 110 (87%) were from India. Of these 110 isolates, 94 (85%) were wild poliovirus type 1; five (5%), wild poliovirus type 2; and 11 (10%), wild poliovirus

[§]Reporting the absence of cases.

[¶]AFP rate of 1 case per 100,000 population aged <15 years; two stool specimens collected at an interval of 24–48 hours within 14 days of paralysis onset from $\geq 80\%$ of AFP cases; stool specimens tested in WHO-accredited laboratory.

**Fifteen laboratories including three reference laboratories (in New Delhi, India; Colombo, Sri Lanka; and Nonthaburi, Thailand) and 12 national laboratories (in Dhaka, Bangladesh; Ahmedabad, Bangalore, Calcutta, Coonoor, Kasauli, Madras, and Mumbai, India; Bandung, Jakarta, and Surabaya, Indonesia; and Yangon, Myanmar).

^{††}Four cases of confirmed polio in DPR Korea had isolation of wild poliovirus in laboratories outside the SEAR laboratory network.

Polio Eradication — Continued

type 3. India was the only country in the region from which wild poliovirus type 2 was isolated (from the northern states of New Delhi [one case], Haryana [one], and Uttar Pradesh [one], and from the southern state of Tamil Nadu [two]). Wild poliovirus type 1 was isolated from Bangladesh (10 cases), Nepal (one), and Thailand (one).

Reported by: South-East Asia Regional Office, New Delhi, India; Global Program for Vaccines and Immunization, World Health Organization, Geneva, Switzerland. Respiratory and Enterovirus Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Polio Eradication Activity, National Immunization Program, CDC.

Editorial Note: As of April 1, 1997, all SEAR countries with endemic polio had conducted from one to three successful NIDs, and coverage with OPV3 was >95% in the target population in every country. The synchronized vaccination activities in the region resulted in the substantial decrease in reported polio cases in 1996 and the decrease in the proportion of total global polio cases accounted for by countries in SEAR. Because all 10 member countries plan to conduct NIDs during 1997–1998, such progress should be sustained in the region. During 1996–1997, coordination of NIDs in SEAR was enhanced by the active participation of SAARC, one of the partner organizations in the regional effort to eradicate polio. In addition, simultaneous coordination of NIDs or sub-NIDs by Pakistan (27 million children) in the Eastern Mediterranean Region and China (65 million children) in the Western Pacific Region resulted in vaccination of 257 million children in these contiguous countries with endemic polio. The political, financial, social, and logistic coordination needed to synchronize multinational NIDs now should also be targeted toward strengthening surveillance both to prioritize eradication strategies and to document the eventual eradication of wild poliovirus.

Although all countries in SEAR have implemented mandatory reporting of AFP cases, only one country in the region has achieved the recommended minimum rate of reporting. One priority is the development of highly sensitive epidemiologic and laboratory surveillance that meets standard performance criteria for identifying all remaining reservoirs of wild poliovirus. The persistent circulation of wild poliovirus in India during 1996 underscores the importance of establishing surveillance to enable precise identification of the virus reservoirs that can be targeted for routine or supplementary vaccination activities. Recent receipt of funds designated for surveillance from partner organizations,^{§§} including DANIDA (Danish government), Rotary International, U.S. Agency for International Development, and NORAD (Norwegian government), ensures that adequate financial resources are available to begin purchasing laboratory and field operations equipment, hire surveillance personnel, and support case investigation.

Because some countries initiated polio-eradication strategies earlier than others, neighboring countries may reach the goal of elimination of wild poliovirus circulation at different times. Wild polioviruses circulated in countries or regions bordering emerging polio-free zones during 1995 and 1996, when cases of paralytic poliomyelitis occurred in children who resided in Myanmar but presented for treatment at a hospital in the neighboring province of Yunnan, China (5,6). To expedite rapid investigation of all such cases, all countries must ensure immediate notification of cases of AFP to the designated national authorities, neighboring countries, and relevant international organizations. To achieve the goal of global eradication of polio by 2000, international

^{§§}The polio-eradication initiative is supported by a coalition of organizations that include WHO, the United Nations Children's Fund (UNICEF), and other bilateral and multilateral organizations.

Polio Eradication — Continued

coordination of NIDs must be complemented by or integrated with cross-border coordination of surveillance.

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Decreasing Incidence of Perinatal Group B Streptococcal Disease — United States, 1993–1995

Group B streptococcal (GBS) infections are the leading cause of bacterial disease and death among newborns in the United States and an important cause of morbidity among peripartum women and nonpregnant adults with chronic medical conditions. Disease in infants usually presents as sepsis, pneumonia, or meningitis but also may include cellulitis or osteomyelitis (1). In 1990, GBS infections caused an estimated 7600 serious illnesses and 310 deaths among U.S. infants aged ≤ 90 days; infections among infants aged < 7 days (i.e., early-onset disease) accounted for approximately 80% of these illnesses (2). To determine the incidence of GBS disease during 1993–1995, CDC conducted surveillance for this disease in an aggregate population of 12.5 million persons with 190,000 annual live-born infants. This report summarizes the findings of surveillance in this population, which indicate that a statistically significant decline in the incidence of early-onset GBS disease occurred in some surveillance areas.

Surveillance was conducted in the three-county San Francisco Bay area, California; four urban counties in Tennessee; the eight-county metropolitan area of Atlanta, Georgia; and the entire state of Maryland. At biweekly intervals, surveillance personnel requested standardized reports of cases of invasive GBS disease from contacts in each laboratory that served acute-care hospitals within specified surveillance areas. Periodic audits of all laboratories were conducted to validate completeness of reporting. A case of invasive GBS disease was defined as isolation of group B streptococci from a normally sterile site (e.g., blood or cerebrospinal fluid) from a resident of an area under surveillance. Cases were categorized as early-onset and late-onset (illness onset at age 7–90 days). To calculate the incidence of neonatal GBS disease for the surveillance areas, the number of live-born infants for 1993–1995 was obtained from the respective state health departments or from CDC's National Center for Health Statistics. Race-specific data are presented only for blacks and whites because numbers for other racial/ethnic groups were too small for meaningful analysis.

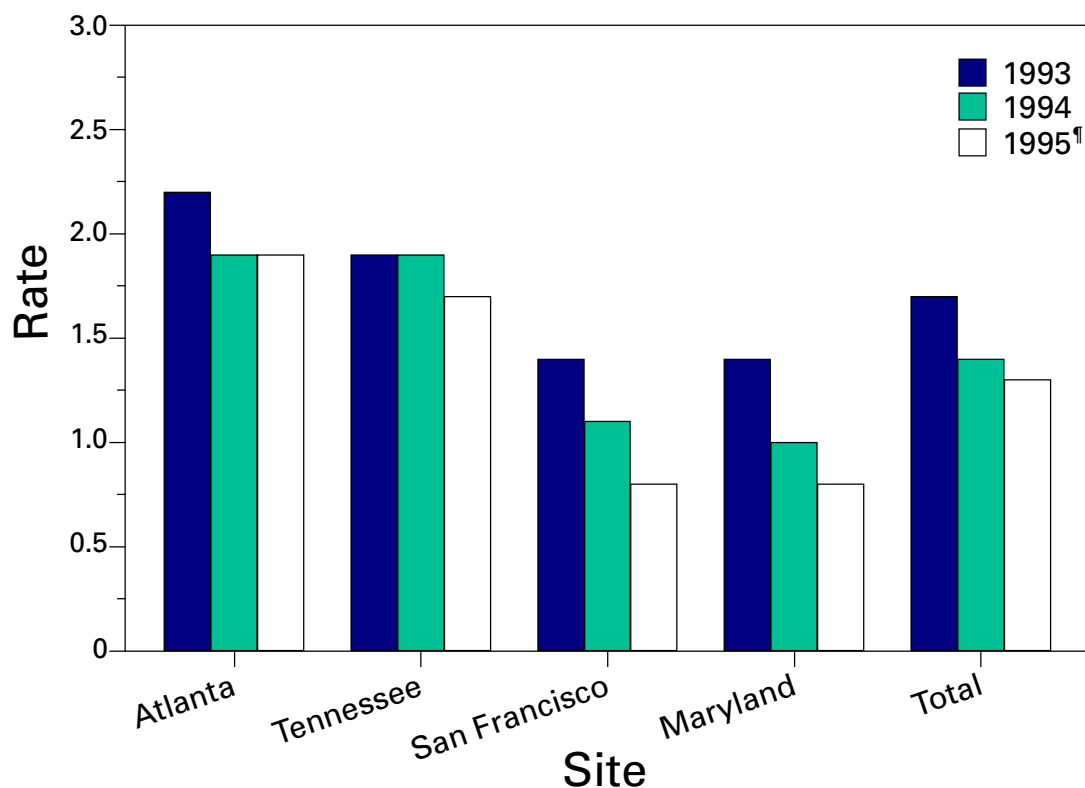
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During 1993–1995, a total of 3023 cases of invasive GBS disease were reported from the surveillance areas; 1071 (35%) cases occurred among newborns aged <90 days. Of the 1071 cases among newborns, 520 (49%) occurred among blacks and 478 (45%), among whites. Approximately three fourths (822 [77%]) of cases were early-onset disease. Bacteremia (89%) and meningitis with or without bacteremia (10%) were the most common types of neonatal disease.

The case-fatality rates were 4.0% for neonatal disease, 4.5% for early-onset disease, and 2.4% for late-onset disease. Of the 708 (66%) infants for whom data about gestational age were available; 85 (12%) were born at <34 weeks' gestation; 65 (9%), at 34–36 weeks' gestation; and 558 (79%), at ≥37 weeks. In comparison, of all infants born in the United States in 1993, 89% were born at ≥37 weeks (3). Preterm infants were more likely to die than those born at ≥37 weeks (23 [16%] of 148 versus 11 [2%] of 553).

During 1993–1995, the overall annual incidence of early-onset GBS disease in the surveillance areas declined 24%, from 1.7 cases per 1000 live-born infants in 1993 to 1.3 per 1000 in 1995 (Figure 1). The race-specific incidence rate declined 27% for black newborns and 18% for white newborns. The decline in the overall incidence primarily

FIGURE 1. Incidence rate* of early-onset group B streptococcal (GBS) disease,† by year and site — selected sites,‡ 1993–1995



*Per 1000 live-born infants.

†Defined as isolation of group B streptococci from a normally sterile site (e.g., blood or cerebrospinal fluid) from a resident of an area under surveillance. GBS cases were categorized as early-onset (illness onset at age <7 days) and late-onset (illness onset at age 7–90 days).

‡The three-county San Francisco Bay area, California; four urban counties in Tennessee; the eight-county metropolitan area of Atlanta, Georgia; and the entire state of Maryland.

†For San Francisco, Maryland, and total, $p < 0.01$, chi-square for trend.

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reflected changes in rates for newborns in Maryland and San Francisco: in both of these sites, the rate of early-onset GBS disease decreased 43%, from 1.4 per 1000 in 1993 to 0.8 per 1000 in 1995. No significant decline occurred in Tennessee or Atlanta during this period. In 1995, the rate varied by geographic location, ranging from 0.8 (Maryland and San Francisco) to 1.9 (Atlanta), and race-specific rates were higher for black newborns (1.8) than for white newborns (1.2). During this same period, the rates of late-onset neonatal GBS disease (0.5 in 1993 and in 1995) and of GBS disease for adults remained stable.

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Editorial Note: Since the mid-1980s, multiple studies have demonstrated consistently that early-onset GBS disease can be prevented by targeted use of antimicrobial prophylaxis after onset of labor or membrane rupture (4). The overall incidence of early-onset GBS disease remained relatively constant during 1991–1993 (5); however, findings in this report of more recent surveillance indicate that, during 1993–1995, the incidence declined significantly in some areas. The recent decline may reflect the impact of adopting measures to prevent early-onset neonatal GBS infections and improved implementation of existing clinical and laboratory policies during 1994 and early 1995. For example, in mid-1993, the proportion of obstetric-care providers in Georgia who reported using optimal techniques for detecting GBS carriage was limited—only 9% of those who performed prenatal screening cultures for GBS collected swabs from recommended sites (both the vagina and rectum), and only 4% of laboratories used the optimal method (selective broth media) for isolating GBS (6,7). In comparison, a survey conducted during mid-1994 (including three of the sites in this report) indicated that 38% of hospital obstetric programs had adopted a formal strategy for preventing perinatal GBS disease and only 12% had written policies (7); however, of those programs without prevention policies at the time of the survey, approximately two thirds reported they were considering or developing such policies.

In addition to adoption of prevention measures for early-onset GBS, other factors probably contributed to the recent decline in early-onset GBS disease. First, during 1992, the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) issued statements about preventing early-onset GBS disease (4). Second, during 1994, state legislatures in California and Florida considered bills that would have mandated development and implementation of practice guidelines for preventing GBS. Although the proposed legislation was not enacted, the issues were widely publicized and resulted in state-sponsored prevention activities. Third, in 1994, CDC issued draft prevention guidelines for public comment (8) and, in 1995, provided educational materials to clinicians who had participated in previous surveys.

Because of the geographical variation in the incidence rates of GBS disease, the decline in early-onset GBS disease documented in the surveillance sites in this report may not represent national trends. However, the changes probably are not the result

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of surveillance artifacts because the incidence of early-onset disease declined while rates for late-onset and adult GBS disease remained stable, and because audits of microbiology laboratories have been routinely conducted in all surveillance areas. These findings are consistent with the effect of prevention efforts that can interrupt mother-to-infant transmission, rather than a change in virulence of circulating GBS strains or decreasing prevalences of GBS carriage among all age groups. Ongoing surveillance in these and additional sites is assessing whether the decline in early-onset GBS disease will continue and become more widespread.

The greater risk for early-onset GBS disease among black newborns than among white newborns may be multifactorial, although GBS carriage rates among pregnant women who are black have been higher than those among women in other racial groups (1,4), and rates of GBS disease have been higher among blacks of all age groups (2,5). More cases of early-onset GBS disease occur in hospitals with higher proportions of deliveries to black women or women without prenatal care. These associations are independent of the frequency of low birthweight (<5 lbs 8 oz [<2500 g]) or patients receiving medical assistance (7).

In collaboration with ACOG, AAP, and a multidisciplinary panel of experts, CDC has developed two strategies (a screening approach and a nonscreening approach) for preventing perinatal GBS disease (4,9,10). The screening approach specifies that all pregnant women should be screened at 35–37 weeks' gestation for GBS carriage, and all identified carriers and women who deliver preterm before availability of a culture result should be offered intrapartum antimicrobial prophylaxis. The nonscreening approach specifies that intrapartum antimicrobial agents should be offered to women with risk factors (e.g., those with elevated intrapartum temperature, membrane rupture ≥ 18 hours, or premature onset of labor or rupture of membranes at <37 weeks). Copies of the guidelines and educational materials for prenatal patients are available from CDC's Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, Mailstop C-23, 1600 Clifton Road NE, Atlanta, GA 30333, or from the World-Wide Web at http://www.cdc.gov/ncidod/diseases/bacter/strep_b.htm.

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*Notice to Readers***Satellite Videoconference on Immunization**

Immunization Update 1997, a live satellite videoconference, will be broadcast Thursday, September 11, 1997, from 8 a.m. to 10:30 a.m. eastern standard time (EST) with repeat broadcasts from 11 a.m. to 1:30 p.m. EST and from 2 p.m. to 4:30 p.m. EST. Cosponsors are CDC's National Immunization Program and the Public Health Training Network. This course is for primary-care physicians, pharmacists, and other health-care professionals.

The course will feature information on new and combination vaccines, polio vaccine and global polio eradication, rotavirus vaccine, new recommendations from the Advisory Committee on Immunization Practices for measles, hepatitis B, pneumococcal and influenza vaccines, and assessment of vaccination levels in private practice.

Registration information is available from state or local health department vaccination programs. Continuing education credits will be awarded.

*Notice to Readers***Satellite Videoconference on Hepatitis C**

Hepatitis C: Diagnosis, Clinical Management, and Prevention, a live satellite videoconference, will be broadcast Saturday, November 22, 1997, from 8:30 to 11 a.m. eastern standard time (EST) and repeated from noon to 2:30 p.m. EST. Cosponsors are CDC, the Public Health Training Network, and the Hepatitis Foundation International. The course is for primary-care physicians, physician specialists, and other health-care professionals.

The course will feature practical information for counseling patients and for making patient-care decisions. Course participants will be able to interact with experts from private practice, CDC, National Institutes of Health, University of California at San Francisco, Veterans Administration Medical Center, and Columbia MetroWest Medical Center of Framingham, Massachusetts.

Registration information is available through the CDC fax information system, telephone (888) 232-3299 [CDC-FAXX], by requesting document number 130010. Continuing education credits will be awarded.

Quarterly Immunization Table

To track progress toward achieving the goals of the Childhood Immunization Initiative (CII), CDC publishes quarterly a tabular summary of the number of cases of nationally notifiable diseases preventable by routine childhood vaccination reported during the previous quarter and year-to-date (provisional data). In addition, the table compares provisional data with final data for the previous year and highlights the number of reported cases among children aged <5 years, who are the primary focus of CII. Data in the table are reported through the National Electronic Telecommunications System for Surveillance (NETSS).

Number of reported cases of nationally notifiable diseases preventable by routine childhood vaccination — United States, January–March 1997 and 1996–1997*

Disease	No. cases, January– March 1997	Total cases January–March		No. cases among children aged <5 years [†] January–March	
		1996	1997	1996	1997
Congenital rubella syndrome	2	1	2	1	2
Diphtheria	1	1	1	0	0
<i>Haemophilus influenzae</i> [§]	256	301	256	71	53
Hepatitis B [¶]	1865	2111	1865	14	59
Measles	19	67	19	9	12
Mumps	134	152	134	26	24
Pertussis	1100	662	1100	296	444
Poliomyelitis, paralytic ^{**}	0	3	0	2	0
Rubella	8	39	8	2	4
Tetanus	9	3	9	0	0

*Data for 1996 and 1997 are provisional.

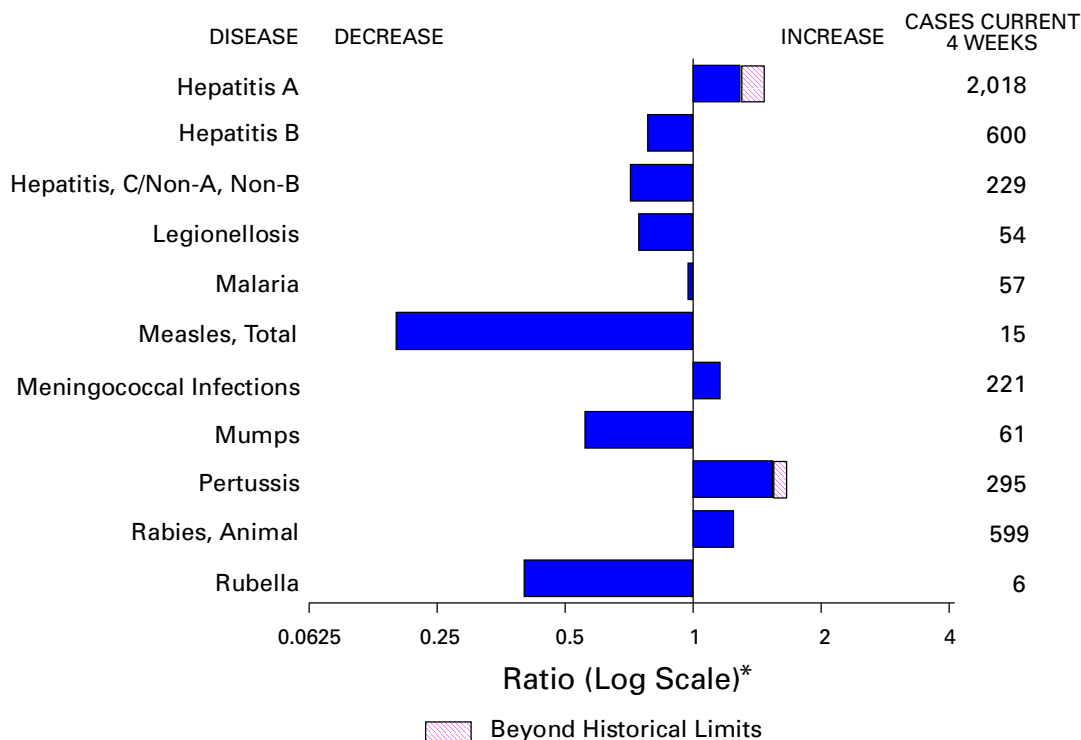
[†]For 1996 and 1997, age data were available for ≥95% of cases, except for 1996 age data for measles, which were available for 91% of cases.

[§]Invasive disease; *H. influenzae* serotype is not routinely reported to the National Notifiable Diseases Surveillance System. Of 53 cases among children aged <5 years, serotype was reported for 26 cases, and of those, 11 were type b, the only serotype of *H. influenzae* preventable by vaccination.

[¶]Because most hepatitis B virus infections among infants and children aged <5 years are asymptomatic (although likely to become chronic), acute disease surveillance does not reflect the incidence of this problem in this age group or the effectiveness of hepatitis B vaccination in infants.

**Two suspected cases with onset in 1996 and one with onset in 1995 remain under investigation.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending May 24, 1997, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending May 24, 1997 (21st Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	1
Brucellosis	16	Poliomyelitis, paralytic	-
Cholera	2	Psittacosis	15
Congenital rubella syndrome	2	Rabies, human	2
Cryptosporidiosis*	449	Rocky Mountain spotted fever (RMSF)	53
Diphtheria	4	Streptococcal disease, invasive Group A	555
Encephalitis: California*	4	Streptococcal toxic-shock syndrome*	13
eastern equine*	-	Syphilis, congenital [†]	62
St. Louis*	1	Tetanus	12
western equine*	-	Toxic-shock syndrome	44
Hansen Disease	45	Trichinosis	3
Hantavirus pulmonary syndrome* [‡]	4	Typhoid fever	103
Hemolytic uremic syndrome, post-diarrheal*	17	Yellow fever	-
HIV infection, pediatric* [§]	92		

-: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 April 29, 1997.

[§]Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 24, 1997, and May 25, 1996 (21st Week)

Reporting Area	AIDS		Chlamydia		Escherichia coli O157:H7		Gonorrhea		Hepatitis C/NA,NB	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	NETSS†	PHLIS‡	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
					Cum. 1997	Cum. 1997				
UNITED STATES	20,222	26,546	154,813	164,191	424	177	97,789	121,599	1,174	1,304
NEW ENGLAND	671	942	6,432	7,532	33	16	2,144	3,126	18	41
Maine	25	15	369	U	1	-	22	20	-	-
N.H.	8	31	277	293	2	-	50	59	3	2
Vt.	16	9	158	176	2	1	21	25	-	12
Mass.	282	549	2,805	2,665	24	15	893	865	13	24
R.I.	55	61	845	847	1	-	198	214	2	3
Conn.	285	277	1,978	3,551	3	-	960	1,943	-	-
MID. ATLANTIC	6,683	7,577	18,485	28,611	32	4	11,041	17,169	134	108
Upstate N.Y.	1,143	794	N	N	19	3	2,058	2,744	106	86
N.Y. City	3,308	4,474	9,220	15,210	5	-	4,219	6,660	-	2
N.J.	1,444	1,414	2,856	5,887	8	-	1,640	3,634	-	-
Pa.	788	895	6,409	7,514	N	1	3,124	4,131	28	20
E.N. CENTRAL	1,416	2,208	23,932	36,039	71	25	14,372	23,251	237	212
Ohio	270	487	5,455	8,195	22	10	3,499	5,734	7	4
Ind.	302	306	3,316	3,891	13	5	2,307	2,643	5	6
Ill.	509	980	4,540	10,240	16	-	2,225	6,760	20	51
Mich.	259	318	7,672	9,285	20	2	5,073	6,165	205	151
Wis.	76	117	2,949	4,428	N	8	1,268	1,949	-	-
W.N. CENTRAL	383	570	8,959	13,242	54	39	4,250	6,656	68	28
Minn.	79	125	U	2,293	29	20	U	1,659	2	-
Iowa	59	43	1,895	1,624	12	8	488	428	16	10
Mo.	150	232	4,436	5,595	5	8	2,994	3,390	32	10
N. Dak.	4	5	339	425	3	2	23	12	2	-
S. Dak.	2	7	473	565	1	-	47	80	-	-
Nebr.	35	39	374	810	2	-	115	166	1	4
Kans.	54	119	1,442	1,930	2	1	583	921	15	4
S. ATLANTIC	4,846	6,549	32,725	22,227	51	13	32,207	38,350	107	71
Del.	69	142	-	-	1	1	443	588	-	-
Md.	576	847	2,857	2,519	2	1	5,266	5,176	6	1
D.C.	282	431	N	N	-	-	1,319	62	-	-
Va.	421	359	4,297	4,790	N	5	3,220	3,892	8	7
W. Va.	27	50	1,387	849	N	-	398	276	5	6
N.C.	281	280	6,743	U	14	6	6,322	7,785	23	19
S.C.	270	344	4,751	U	1	-	4,236	4,581	18	14
Ga.	683	868	3,482	4,735	15	-	4,551	8,850	U	-
Fla.	2,237	3,228	9,208	9,287	18	-	6,452	7,140	47	24
E.S. CENTRAL	609	870	12,948	12,146	34	7	12,814	12,675	150	252
Ky.	60	152	2,674	2,833	10	-	1,628	1,685	7	12
Tenn.	285	310	5,013	5,179	18	7	4,211	4,449	88	207
Ala.	151	276	3,071	3,525	3	-	4,350	5,386	5	1
Miss.	113	132	2,190	609	3	-	2,625	1,155	50	32
W.S. CENTRAL	2,040	2,638	19,688	8,623	24	4	13,129	8,156	126	148
Ark.	83	121	474	656	2	1	986	1,639	-	3
La.	385	649	3,194	2,744	3	3	3,029	2,932	79	67
Okla.	116	100	2,983	2,790	1	-	1,866	1,757	4	43
Tex.	1,456	1,768	13,037	2,433	18	-	7,248	1,828	43	35
MOUNTAIN	601	785	9,689	6,332	44	25	2,886	3,143	147	269
Mont.	16	10	311	513	3	-	14	13	5	9
Idaho	18	10	590	642	10	1	44	36	20	67
Wyo.	11	2	211	295	3	-	24	13	57	85
Colo.	156	245	1,733	8	16	8	751	712	18	25
N. Mex.	58	45	1,421	1,595	4	3	534	358	27	34
Ariz.	158	233	3,694	1,469	N	10	1,142	1,536	15	28
Utah	41	85	674	624	5	-	88	122	2	11
Nev.	143	155	1,055	1,186	3	3	289	353	3	10
PACIFIC	2,973	4,407	21,955	29,439	81	41	4,946	9,073	187	175
Wash.	241	309	3,716	4,094	17	4	799	941	10	26
Oreg.	128	223	1,410	2,250	26	15	217	201	4	3
Calif.	2,570	3,784	15,675	22,004	35	19	3,582	7,534	109	63
Alaska	12	11	551	374	3	-	181	188	-	2
Hawaii	22	80	603	717	N	3	167	209	64	81
Guam	2	3	31	176	N	-	3	29	-	5
P.R.	520	423	N	N	21	U	248	121	43	13
V.I.	29	9	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	11	11	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 April 29, 1997.

†National Electronic Telecommunications System for Surveillance.

‡Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending May 24, 1997, and May 25, 1996 (21st Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	324	295	1,039	1,584	455	456	3,219	4,709	5,450	6,908	2,820
NEW ENGLAND	24	15	222	173	14	14	62	74	135	206	429
Maine	1	1	3	2	1	3	-	-	2	8	92
N.H.	4	-	5	3	1	1	-	1	1	4	19
Vt.	3	2	3	-	1	2	-	-	2	-	69
Mass.	8	6	51	16	9	5	35	31	84	58	86
R.I.	4	6	34	21	2	3	-	-	13	20	8
Conn.	4	N	126	131	-	-	27	42	33	116	155
MID. ATLANTIC	54	66	636	1,234	110	136	149	209	1,203	1,182	616
Upstate N.Y.	11	14	95	591	22	28	14	24	158	128	452
N.Y. City	-	4	6	64	55	73	33	68	641	613	-
N.J.	7	7	139	144	24	26	61	72	241	267	59
Pa.	36	41	396	435	9	9	41	45	163	174	105
E.N. CENTRAL	119	107	20	16	30	59	282	786	636	741	50
Ohio	68	38	16	9	4	6	99	309	136	109	39
Ind.	15	27	4	5	3	4	67	108	57	76	5
Ill.	-	14	-	2	5	29	24	212	296	407	2
Mich.	31	18	-	-	15	11	45	71	102	116	3
Wis.	5	10	U	U	3	9	47	86	45	33	1
W.N. CENTRAL	30	18	11	42	13	11	53	185	188	197	164
Minn.	1	1	9	1	5	3	U	22	48	48	16
Iowa	7	2	-	5	5	1	3	13	20	23	66
Mo.	6	4	-	17	2	5	33	134	81	76	8
N. Dak.	2	-	-	-	-	-	-	-	4	2	22
S. Dak.	1	2	-	-	-	-	-	-	2	13	17
Nebr.	9	7	2	-	1	-	1	6	4	13	1
Kans.	4	2	-	19	-	2	16	10	29	22	34
S. ATLANTIC	50	32	99	60	114	73	1,320	1,546	1,160	1,260	1,205
Del.	4	2	-	32	2	2	11	16	7	22	28
Md.	16	5	73	6	33	21	340	252	118	101	212
D.C.	2	1	5	1	6	3	41	8	35	54	2
Va.	8	10	-	-	22	8	116	199	111	118	253
W. Va.	-	1	-	3	-	1	1	2	21	23	31
N.C.	5	3	7	12	6	8	291	440	132	158	374
S.C.	2	3	1	2	7	3	168	186	125	141	57
Ga.	-	-	1	-	12	8	229	286	215	262	112
Fla.	13	7	12	4	26	19	123	157	396	381	136
E.S. CENTRAL	10	18	25	22	13	13	755	1,146	444	534	107
Ky.	-	2	2	6	2	3	68	60	79	96	11
Tenn.	5	8	10	6	4	5	322	379	120	169	69
Ala.	1	1	2	1	4	2	195	236	170	180	27
Miss.	4	7	11	9	3	3	170	471	75	89	-
W.S. CENTRAL	4	2	4	7	5	11	443	479	140	760	117
Ark.	-	-	-	4	1	-	29	120	80	73	19
La.	1	-	1	-	4	1	163	223	-	3	1
Okla.	-	2	2	2	-	-	51	62	60	62	50
Tex.	3	-	1	1	-	10	200	74	U	622	47
MOUNTAIN	18	17	2	-	29	26	65	58	211	224	37
Mont.	1	1	-	-	2	2	-	-	2	7	6
Idaho	2	-	-	-	-	-	-	1	4	4	-
Wyo.	1	2	1	-	1	2	-	1	2	3	12
Colo.	3	6	-	-	14	13	2	17	44	41	-
N. Mex.	1	-	-	-	4	1	-	-	8	34	3
Ariz.	5	4	1	-	4	3	54	35	97	91	15
Utah	4	1	-	-	1	3	3	-	10	10	-
Nev.	1	3	-	-	3	2	6	4	44	34	1
PACIFIC	15	20	20	30	127	113	90	226	1,333	1,804	95
Wash.	4	1	-	1	8	7	6	2	82	107	-
Oreg.	-	-	8	9	8	8	3	4	58	72	1
Calif.	10	19	12	19	107	93	79	219	1,090	1,522	81
Alaska	-	-	-	-	2	1	1	-	36	39	13
Hawaii	1	-	-	1	2	4	1	1	67	64	-
Guam	-	-	-	-	-	-	-	3	5	45	-
P.R.	-	-	-	-	3	-	88	52	88	58	25
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	4	1	-	-	-

N: Not notifiable

U: Unavailable

-: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 24, 1997, and May 25, 1996 (21st Week)

Reporting Area	<i>H. influenzae</i> , invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
	Cum. 1997*	Cum. 1996	A		B		Indigenous		Imported†		Total	
			Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	460	503	10,740	10,668	3,282	3,644	1	31	-	14	45	168
NEW ENGLAND	26	11	233	130	72	86	-	-	-	-	-	6
Maine	3	-	35	10	5	2	-	-	-	-	-	-
N.H.	2	6	16	4	5	6	U	-	U	-	-	-
Vt.	-	-	6	3	1	5	-	-	-	-	-	1
Mass.	18	5	101	64	42	21	-	-	-	-	-	4
R.I.	2	-	22	4	8	5	-	-	-	-	-	-
Conn.	1	-	53	45	11	47	-	-	-	-	-	1
MID. ATLANTIC	53	99	779	712	443	602	-	7	-	4	11	12
Upstate N.Y.	4	24	101	152	89	135	-	1	-	3	4	4
N.Y. City	17	23	274	250	144	232	-	4	-	1	5	7
N.J.	23	30	146	152	104	120	-	1	-	-	1	-
Pa.	9	22	258	158	106	115	-	1	-	-	1	1
E.N. CENTRAL	64	87	1,152	1,024	364	454	-	4	-	2	6	12
Ohio	41	49	173	408	39	51	-	-	-	-	-	2
Ind.	5	3	124	137	35	61	-	-	-	-	-	-
Ill.	11	25	228	236	78	132	-	4	-	1	5	2
Mich.	6	5	564	148	198	171	-	-	-	1	1	2
Wis.	1	5	63	95	14	39	-	-	-	-	-	6
W.N. CENTRAL	20	17	779	820	207	184	-	9	-	1	10	15
Minn.	12	10	69	37	18	13	-	-	-	1	1	14
Iowa	2	2	104	171	29	21	-	-	-	-	-	-
Mo.	2	3	408	401	136	118	-	1	-	-	1	1
N. Dak.	-	-	7	22	1	-	U	-	U	-	-	-
S. Dak.	2	1	12	35	-	-	-	8	-	-	8	-
Nebr.	1	1	56	97	9	14	-	-	-	-	-	-
Kans.	1	-	123	57	14	18	-	-	-	-	-	-
S. ATLANTIC	104	92	649	386	470	456	1	1	-	2	3	4
Del.	-	1	11	5	2	2	-	-	-	-	-	1
Md.	38	31	118	84	72	70	-	-	-	1	1	-
D.C.	2	4	13	15	18	15	-	-	-	1	1	-
Va.	6	4	73	61	45	62	-	-	-	-	-	2
W. Va.	3	4	5	10	6	11	-	-	-	-	-	-
N.C.	14	14	90	49	93	129	-	-	-	-	-	-
S.C.	4	3	54	29	42	38	-	-	-	-	-	-
Ga.	17	26	117	15	47	7	-	-	-	-	-	-
Fla.	20	5	168	118	145	122	1	1	-	-	1	1
E.S. CENTRAL	32	17	313	713	290	342	-	-	-	-	-	-
Ky.	5	4	29	14	14	35	-	-	-	-	-	-
Tenn.	19	7	203	509	179	207	-	-	-	-	-	-
Ala.	8	5	46	94	29	22	-	-	-	-	-	-
Miss.	-	1	35	96	68	U	U	-	U	-	-	-
W.S. CENTRAL	23	19	2,293	1,721	412	321	-	3	-	1	4	2
Ark.	1	-	121	214	22	35	-	-	-	-	-	-
La.	3	1	84	53	45	46	-	-	-	-	-	-
Okla.	14	17	705	772	11	19	-	-	-	-	-	-
Tex.	5	1	1,383	682	334	221	-	3	-	1	4	2
MOUNTAIN	42	27	1,675	1,665	376	454	-	2	-	-	2	15
Mont.	-	-	46	53	5	4	-	-	-	-	-	-
Idaho	1	1	72	122	13	54	-	-	-	-	-	1
Wyo.	-	-	18	18	20	14	-	-	-	-	-	-
Colo.	6	5	191	157	77	55	-	-	-	-	-	4
N. Mex.	3	7	119	208	133	150	-	-	-	-	-	-
Ariz.	13	9	817	571	73	102	-	2	-	-	2	3
Utah	3	5	307	388	38	52	-	-	-	-	-	3
Nev.	16	-	105	148	17	23	U	-	U	-	-	4
PACIFIC	96	134	2,867	3,497	648	745	-	5	-	4	9	102
Wash.	1	1	220	220	27	46	-	-	-	-	-	30
Oreg.	19	19	160	499	50	51	-	-	-	-	-	4
Calif.	70	110	2,413	2,711	553	645	U	2	U	4	6	3
Alaska	1	2	16	28	12	1	-	-	-	-	-	63
Hawaii	5	2	58	39	6	2	-	3	-	-	3	2
Guam	-	-	-	3	1	-	U	-	U	-	-	-
P.R.	-	-	152	24	531	82	-	-	-	-	-	2
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	4	10	1	1	19	5	U	1	U	-	1	-

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

*Of 95 cases among children aged <5 years, serotype was reported for 46 and of those, 18 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 May 24, 1997, and May 25, 1996 (21st Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	1,645	1,533	5	264	285	30	2,004	1,337	1	21	85
NEW ENGLAND	99	57	-	7	-	1	448	236	-	-	11
Maine	9	8	-	-	-	-	6	10	-	-	-
N.H.	9	1	U	-	-	U	57	16	U	-	-
Vt.	2	3	-	-	-	-	159	7	-	-	2
Mass.	54	20	-	2	-	1	209	200	-	-	7
R.I.	7	5	-	4	-	-	12	-	-	-	-
Conn.	18	20	-	1	-	-	5	3	-	-	2
MID. ATLANTIC	140	149	-	24	39	-	140	92	-	1	5
Upstate N.Y.	37	38	-	4	9	-	52	49	-	-	3
N.Y. City	24	26	-	-	11	-	19	14	-	1	1
N.J.	31	34	-	-	2	-	5	4	-	-	1
Pa.	48	51	-	20	17	-	64	25	-	-	-
E.N. CENTRAL	223	233	2	29	74	1	154	199	-	2	3
Ohio	94	78	-	12	26	1	63	66	-	-	-
Ind.	25	32	-	4	5	-	22	12	-	-	-
Ill.	67	71	-	7	14	-	23	53	-	-	1
Mich.	19	26	2	6	28	-	26	11	-	-	2
Wis.	18	26	-	-	1	-	20	57	-	2	-
W.N. CENTRAL	120	119	1	9	4	2	108	58	-	-	-
Minn.	12	14	-	3	1	2	67	38	-	-	-
Iowa	25	25	1	4	-	-	15	2	-	-	-
Mo.	62	49	-	-	1	-	16	11	-	-	-
N. Dak.	1	2	U	-	2	U	2	-	U	-	-
S. Dak.	4	3	-	-	-	-	1	1	-	-	-
Nebr.	5	12	-	2	-	-	2	2	-	-	-
Kans.	11	14	-	-	-	-	5	4	-	-	-
S. ATLANTIC	299	236	-	39	33	4	182	120	-	2	12
Del.	4	2	-	-	-	-	-	11	-	-	-
Md.	31	26	-	4	15	1	68	52	-	-	-
D.C.	1	3	-	-	-	-	2	-	-	-	1
Va.	27	28	-	4	3	-	19	5	-	1	-
W. Va.	10	10	-	-	-	-	3	2	-	-	-
N.C.	49	36	-	6	-	-	35	24	-	-	-
S.C.	39	33	-	9	5	-	8	1	-	1	1
Ga.	58	72	-	4	2	1	7	7	-	-	-
Fla.	80	26	-	12	8	2	40	18	-	-	10
E.S. CENTRAL	128	118	-	15	11	1	37	127	-	-	-
Ky.	32	17	-	2	-	-	2	110	-	-	-
Tenn.	48	35	-	4	1	-	16	11	-	-	-
Ala.	32	34	-	5	3	1	11	3	-	-	-
Miss.	16	32	U	4	7	U	8	3	U	-	N
W.S. CENTRAL	168	175	1	29	23	-	31	42	1	4	7
Ark.	23	24	-	-	-	-	5	2	-	-	-
La.	29	35	-	7	9	-	7	4	-	-	1
Okla.	21	14	-	-	-	-	5	4	-	-	-
Tex.	95	102	1	22	14	-	14	32	1	4	6
MOUNTAIN	101	90	-	34	13	19	617	153	-	2	5
Mont.	7	3	-	-	-	-	5	5	-	-	-
Idaho	7	12	-	2	-	12	462	56	-	-	2
Wyo.	-	-	-	1	-	1	4	-	-	-	-
Colo.	29	15	-	3	1	3	107	26	-	-	1
N. Mex.	17	18	N	N	N	2	24	27	-	-	-
Ariz.	23	25	-	22	1	1	10	11	-	2	1
Utah	12	9	-	4	2	-	3	5	-	-	-
Nev.	6	8	U	2	9	U	2	23	U	-	1
PACIFIC	367	356	1	78	88	2	287	310	-	10	42
Wash.	48	48	1	10	8	2	154	136	-	-	7
Oreg.	79	67	-	1	-	-	15	28	-	-	1
Calif.	237	235	U	56	65	U	111	135	U	5	32
Alaska	1	4	-	2	2	-	1	1	-	-	-
Hawaii	2	2	-	9	13	-	6	10	-	5	2
Guam	-	1	U	1	4	U	-	-	U	-	-
P.R.	8	2	-	4	1	-	-	-	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	1	-	U	-	-	U	-	-

N: Not notifiable

U: Unavailable

-: no reported cases

**TABLE IV. Deaths in 122 U.S. cities,* week ending
May 24, 1997 (21st Week)**

Reporting Area	All Causes, By Age (Years)						P&J† Total	Reporting Area	All Causes, By Age (Years)						P&J† Total
	All Ages	>65	45-64	25-44	1-24	<1			All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	515	366	95	37	10	7	35	S. ATLANTIC	1,229	812	264	111	27	15	74
Boston, Mass.	125	82	25	8	8	2	7	Atlanta, Ga.	168	107	40	15	5	1	12
Bridgeport, Conn.	31	25	1	4	-	1	1	Baltimore, Md.	144	102	24	15	2	1	8
Cambridge, Mass.	13	10	1	2	-	-	1	Charlotte, N.C.	60	45	7	6	-	-	4
Fall River, Mass.	21	15	5	1	-	-	3	Jacksonville, Fla.	146	92	34	15	4	1	7
Hartford, Conn.	22	18	3	1	-	-	-	Miami, Fla.	94	52	26	12	3	1	-
Lowell, Mass.	23	17	2	4	-	-	-	Norfolk, Va.	73	43	18	7	4	1	5
Lynn, Mass.	19	16	3	-	-	-	-	Richmond, Va.	87	56	21	7	3	-	9
New Bedford, Mass.	19	17	1	1	-	-	-	Savannah, Ga.	48	37	8	2	1	-	8
New Haven, Conn.	46	31	7	6	1	1	2	St. Petersburg, Fla.	56	42	8	5	-	-	4
Providence, R.I.	42	23	15	3	1	-	3	Tampa, Fla.	191	135	40	10	3	3	12
Somerville, Mass.	10	6	4	-	-	-	-	Washington, D.C.	151	90	38	17	2	4	5
Springfield, Mass.	43	37	5	-	-	1	3	Wilmington, Del.	11	11	-	-	-	-	-
Waterbury, Conn.	58	38	15	4	-	1	5	E.S. CENTRAL	842	580	173	60	16	13	43
Worcester, Mass.	43	31	8	3	-	1	10	Birmingham, Ala.	180	131	34	10	3	2	6
MID. ATLANTIC	2,339	1,585	473	192	45	44	123	Chattanooga, Tenn.	45	34	7	2	1	1	1
Albany, N.Y.	44	28	11	3	2	-	4	Knoxville, Tenn.	97	70	21	3	2	1	5
Allentown, Pa.	14	9	5	-	-	-	1	Lexington, Ky.	71	52	14	4	-	1	12
Buffalo, N.Y.	54	36	10	4	1	3	1	Memphis, Tenn.	153	96	34	15	4	4	14
Camden, N.J.	37	22	10	3	1	1	5	Mobile, Ala.	125	82	29	9	2	3	-
Elizabeth, N.J.	20	13	3	3	1	-	-	Montgomery, Ala.	35	25	5	4	1	-	-
Erie, Pa.	41	32	7	2	-	-	3	Nashville, Tenn.	136	90	29	13	3	1	5
Jersey City, N.J.	41	28	8	3	1	1	2	W.S. CENTRAL	1,343	890	238	123	48	44	85
New York City, N.Y.	1,172	782	246	108	19	17	47	Austin, Tex.	66	39	15	6	3	3	1
Newark, N.J.	45	24	7	7	5	2	-	Baton Rouge, La.	25	14	5	3	2	1	-
Paterson, N.J.	25	17	6	-	2	-	-	Corpus Christi, Tex.	44	33	4	3	3	1	5
Philadelphia, Pa.	400	272	76	35	9	8	25	Dallas, Tex.	172	117	35	11	6	3	6
Pittsburgh, Pa.‡	76	50	13	6	1	6	5	El Paso, Tex.	71	50	11	3	5	2	3
Reading, Pa.	9	8	1	-	-	-	-	Ft. Worth, Tex.	103	72	20	5	2	4	7
Rochester, N.Y.	135	92	29	11	2	1	10	Houston, Tex.	256	164	44	30	10	8	25
Schenectady, N.Y.	27	20	5	2	-	-	3	Little Rock, Ark.	68	42	16	5	1	4	5
Scranton, Pa.	27	20	4	-	1	2	1	New Orleans, La.	151	97	22	22	5	5	-
Syracuse, N.Y.	101	83	15	2	-	1	14	San Antonio, Tex.	192	132	33	19	2	6	15
Trenton, N.J.	32	20	7	3	-	2	1	Shreveport, La.	61	41	11	5	4	-	7
Utica, N.Y.	14	9	5	-	-	-	-	Tulsa, Okla.	134	89	22	11	5	7	11
Yonkers, N.Y.	25	20	5	-	-	-	1	MOUNTAIN	885	593	166	70	27	29	48
E.N. CENTRAL	2,129	1,437	384	173	59	74	116	Albuquerque, N.M.	107	65	31	7	2	2	6
Akron, Ohio	55	40	12	1	1	1	-	Boise, Idaho	41	32	5	2	-	2	3
Canton, Ohio	40	31	6	2	-	1	4	Colo. Springs, Colo.	42	23	11	5	3	-	1
Chicago, Ill.	462	281	79	56	19	26	34	Denver, Colo.	84	57	16	4	3	4	8
Cincinnati, Ohio	95	69	15	4	2	5	2	Las Vegas, Nev.	172	120	29	14	5	4	7
Cleveland, Ohio	159	105	30	9	8	7	-	Ogden, Utah	27	18	7	-	1	1	1
Columbus, Ohio	206	141	37	17	6	5	14	Phoenix, Ariz.	150	97	24	15	5	9	10
Dayton, Ohio	134	100	25	5	2	2	4	Pueblo, Colo.	26	18	6	2	-	-	-
Detroit, Mich.	194	111	46	20	8	8	5	Salt Lake City, Utah	103	67	21	8	5	2	6
Evansville, Ind.	60	43	11	6	-	-	1	Tucson, Ariz.	133	96	16	13	3	5	6
Fort Wayne, Ind.	47	30	12	4	-	1	2	PACIFIC	1,256	882	219	105	20	29	106
Gary, Ind.	7	4	3	-	-	-	-	Berkeley, Calif.	11	7	3	1	-	-	1
Grand Rapids, Mich.	55	47	6	-	2	-	11	Fresno, Calif.	103	59	20	15	4	5	3
Indianapolis, Ind.	202	129	40	21	6	6	14	Glendale, Calif.	U	U	U	U	U	U	U
Lansing, Mich.	U	U	U	U	U	U	U	Honolulu, Hawaii	74	60	7	7	-	-	9
Milwaukee, Wis.	126	95	13	14	1	3	11	Long Beach, Calif.	87	58	20	7	2	-	17
Peoria, Ill.	48	36	4	5	1	2	5	Los Angeles, Calif.	U	U	U	U	U	U	U
Rockford, Ill.	42	29	10	2	1	-	2	Pasadena, Calif.	U	U	U	U	U	U	U
South Bend, Ind.	45	32	8	2	-	3	2	Portland, Oreg.	114	81	22	6	1	4	3
Toledo, Ohio	87	62	17	3	2	3	4	Sacramento, Calif.	128	97	15	7	3	6	10
Youngstown, Ohio	65	52	10	2	-	1	1	San Diego, Calif.	107	70	15	16	-	6	12
W.N. CENTRAL	845	610	148	52	16	13	41	San Francisco, Calif.	147	97	28	18	2	1	17
Des Moines, Iowa	113	82	20	8	2	1	6	San Jose, Calif.	185	140	33	10	2	-	18
Duluth, Minn.	29	21	5	2	-	1	1	Santa Cruz, Calif.	36	32	3	1	-	-	6
Kansas City, Kans.	44	30	7	2	3	2	2	Seattle, Wash.	111	74	26	7	3	1	3
Kansas City, Mo.	115	75	22	7	4	1	7	Spokane, Wash.	73	53	11	6	2	1	5
Lincoln, Nebr.	30	27	1	1	1	-	4	Tacoma, Wash.	80	54	16	4	1	5	2
Minneapolis, Minn.	200	144	44	8	1	3	9	TOTAL	11,383‡	7,755	2,160	923	268	268	671
Omaha, Nebr.	90	68	14	4	1	3	3								
St. Louis, Mo.	114	81	16	12	3	2	3								
St. Paul, Minn.	51	40	7	3	1	-	6								
Wichita, Kans.	59	42	12	5	-	-	-								

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

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