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Achievements in Public Health, 1900–1999

Changes in the Public Health System

The 10 public health achievements highlighted in this *MMWR* series (see box) reflect the successful response of public health to the major causes of morbidity and mortality of the 20th century (*1–11*). In addition, these achievements demonstrate the ability of public health to meet an increasingly diverse array of public health challenges. This report highlights critical changes in the U.S. public health system this century.

In the early 1900s in the United States, many major health threats were infectious diseases associated with poor hygiene and poor sanitation (e.g., typhoid), diseases associated with poor nutrition (e.g., pellagra and goiter), poor maternal and infant health, and diseases or injuries associated with unsafe workplaces or hazardous occupations (*4,5,7,8*). The success of the early public health system to incorporate biomedical advances (e.g., vaccinations and antibiotics) and to develop interventions such as health education programs resulted in decreases in the impact in these diseases. However, as the incidence of these diseases decreased, chronic diseases (e.g., cardiovascular disease and cancer) increased (*6,10*). In the last half of the century,

Ten Great Public Health Achievements — United States, 1900–1999

- Vaccination
- Motor-vehicle safety
- Safer workplaces
- Control of infectious diseases
- Decline in deaths from coronary heart disease and stroke
- Safer and healthier foods
- Healthier mothers and babies
- Family planning
- Fluoridation of drinking water
- Recognition of tobacco use as a health hazard

Public Health System — Continued

public health identified the risk factors for many chronic diseases and intervened to reduce mortality. Public efforts also led to reduced deaths attributed to a new technology, the motor vehicle (*3*). These successes demonstrated the value of community action to address public health issues and have fostered public support for the growth of institutions that are components of the public health infrastructure*. The focus of public health research and programs shifted to respond to the effects of chronic diseases on the public's health (*12–17*). While continuing to develop and refine interventions, enhanced morbidity and mortality surveillance helped to maintain these earlier successes. The shift in focus led to improved capacity of epidemiology and to changes in public health training and programs.

Quantitative Analytic Techniques

Epidemiology, the population-based study of disease and an important part of the scientific foundation of public health, acquired greater quantitative capacity during the 20th century. Improvements occurred in both study design and periodic standardized health surveys (*12,18–21*). Methods of data collection evolved from simple measures of disease prevalence (e.g., field surveys) to complex studies of precise analyses (e.g., cohort studies, case-control studies, and randomized clinical trials) (*12*). The first well-developed, longitudinal cohort study was conducted in 1947 among the 28,000 residents of Framingham, Massachusetts, many of whom volunteered to be followed over time to determine incidence of heart disease (*12*). The Framingham Heart Study served as the model for other longitudinal cohort studies and for the concept that biologic, environmental, and behavioral risk factors exist for disease (*6,12*).

In 1948, modern clinical trials began with publication of a clinical trial of streptomycin therapy for tuberculosis, which employed randomization, selection criteria, predetermined evaluation criteria, and ethical considerations (*19,21*). In 1950, the case-control study gained prominence when this method provided the first solidly scientific evidence of an association between lung cancer and cigarette smoking (*22*). Subsequently, high-powered statistical tests and analytic computer programs enabled multiple variables collected in large-scale studies to be measured and to the development of tools for mathematical modeling. Advances in epidemiology permitted elucidation of risk factors for heart disease and other chronic diseases and the development of effective interventions.

Periodic Standardized Health Surveys

In 1921, periodic standardized health surveys began in Hagerstown, Maryland (*12*). In 1935, the first national health survey was conducted among U.S. residents (*12,23*). In 1956, these efforts resulted in the National Health Survey, a population-based survey that evolved from focusing on chronic disease to estimating disease prevalence for major causes of death, measuring the burden of infectious diseases, assessing exposure to environmental toxicants, and measuring the population's vaccination coverage. Other population-based surveys (e.g., Behavioral Risk Factor Surveillance System, Youth Risk Behavior Survey, and the National Survey of Family Growth) were developed to assess risk factors for chronic diseases and other conditions (*24–26*). Methods developed by social scientists and statisticians to address issues such as sampling and interviewing techniques have enhanced survey methods used in epidemiologic studies (*12*).

*The government, community, professional, voluntary, and academic institutions and organizations that support or conduct public health research or programs.

Public Health System — Continued

Morbidity and Mortality Surveillance

National disease monitoring was first conducted in the United States in 1850, when mortality statistics based on death registrations were first published by the federal government (*23,27*). During 1878–1902, Congress authorized the collection of morbidity reports on cholera, smallpox, plague, and yellow fever for use in quarantine measures, to provide funds to collect and disseminate these data, to expand authority for weekly reporting from states and municipal authorities, and to provide forms for collecting data and publishing reports (*15,23,27*). The first annual summary of *The Notifiable Diseases* in 1912 included reports of 10 diseases from 19 states, the District of Columbia, and Hawaii. By 1928, all states, the District of Columbia, Hawaii, and Puerto Rico were participating in the national reporting of 29 diseases. In 1950, state and territorial health officers authorized the Council of State and Territorial Epidemiologists (CSTE) to determine which diseases should be reported to the U.S. Public Health Service (PHS) (*27*). In 1961, the Centers for Disease Control and Prevention (CDC) assumed responsibility for collecting and publishing nationally notifiable diseases data. As of January 1, 1998, 52 infectious diseases were notifiable at the national level.

In the early 1900s, efforts at surveillance focused on tracking persons with disease; by mid-century, the focus had changed to tracking trends in disease occurrence (*28,29*). In 1947, Alexander Langmuir at the newly formed Communicable Disease Center, the early name for CDC, began the first disease surveillance system (*27*). In 1955, surveillance data helped to determine the cause of poliomyelitis among children recently vaccinated with an inactivated vaccine (*28*). After the first polio cases were recognized, data from the national polio surveillance program confirmed that the cases were linked to one brand of vaccine contaminated with live wild poliovirus. The national vaccine program continued by using supplies from other polio vaccine manufacturers (*28*). Since these initial disease surveillance efforts, morbidity tracking has become a standard feature of public health infectious disease control (*29*).

Public Health Training

In 1916, with the support of the Rockefeller Foundation, the Johns Hopkins School of Hygiene and Public Health was started (*30,31*). By 1922, Columbia, Harvard, and Yale universities had established schools of public health. In 1969, the number of schools of public health had increased to 12, and in 1999, 29 accredited schools of public health enrolled approximately 15,000 students (*31,32*). Besides the increase in the number of schools and students, the types of student in public health schools changed. Traditionally, students in public health training already had obtained a medical degree. However, increasing numbers of students entered public health training to obtain a primary postgraduate degree. In 1978, 3753 (69%) public health students enrolled with only baccalaureates. The proportion of students who were physicians declined from 35% in 1944–1945 to 11% in 1978 (*28,31*). Thus, public health training evolved from a second degree for medical professionals to a primary health discipline (*33*). Schools of public health initially emphasized the study of hygiene and sanitation; subsequently, the study of public health has expanded into five core disciplines: biostatistics, epidemiology, health services administration, health education/behavioral science, and environmental science (*30,34*).

Programs also were started to provide field training in epidemiology and public health. In 1948, a board was established to certify training of physicians in public

Public Health System — Continued

health administration, and by 1951, approximately 40 local health departments had accredited preventive medicine and public residency programs. In 1951, CDC developed the Epidemic Intelligence Service (EIS) to guard against domestic acts of biologic warfare during the Korean conflict and to address common public health threats. Since 1951, more than 2000 EIS officers have responded to requests for epidemiologic assistance within the United States and throughout the world. In 1999, 149 EIS officers are on duty.

Nongovernment and Government Organizations

At the beginning of the century, many public health initiatives were started and supported by nongovernment organizations. However, as federal, state, and local public health infrastructure expanded, governments' role increased and assumed more responsibility for public health research and programs. Today, public health represents the work of both government and nongovernment organizations.

Nongovernment organizations. The Rockefeller Sanitary Committee's Hookworm Eradication Project conducted during 1910–1920 was one of the earliest voluntary efforts to engage in a campaign for a specific disease (*35*). During 1914–1933, the Rockefeller Foundation also provided $2.6 million to support county health departments and sponsored medical education reform. Other early efforts to promote community health include the National Tuberculosis Association work for TB treatment and prevention, the National Consumers League's support of maternal and infant health in the 1920s, the American Red Cross' sponsorship of nutrition programs in the 1930s, and the March of Dimes' support of research in the 1940s and 1950s that led to a successful polio vaccine. Mothers Against Drunk Driving started in 1980 by a group of women in California after a girl was killed by an intoxicated driver and grew into a national campaign for stronger laws against drunk driving.

Professional organizations and labor unions also worked to promote public heath. The American Medical Association advocated better vital statistics and safer foods and drugs (*17*). The American Dental Association endorsed water fluoridation despite the economic consequences to its members (*9*). Labor organizations worked for safer workplaces in industry (*4*). In the 1990s, nongovernment organizations sponsor diverse public health research projects and programs (e.g., family planning, human immunodeficiency virus prevention, vaccine development, and heart disease and cancer prevention).

State health departments. The 1850 Report of the Sanitary Commission of Massachusetts, authored by Lemuel Shattuck (*13,14*), outlined many elements of the modern public health infrastructure including a recommendation for establishing state and local health boards. Massachusetts formed the first state health department in 1889. By 1900, 40 states had health departments that made advances in sanitation and microbial sciences available to the public. Later, states also provided other public health interventions: personal health services (e.g., disabled children and maternal and child health care, and sexually transmitted disease treatment), environmental health (e.g., waste management and radiation control), and health resources (e.g., health planning, regulation of health care and emergency services, and health statistics). All states have public health laboratories that provide direct services and oversight functions (*36*).

Public Health System — Continued

County health departments. Although some cities had local public health boards in the early 1900s, no county health departments existed (*33*). During 1910–1911, the success of a county sanitation campaign to control a severe typhoid epidemic in Yakima County, Washington, created public support for a permanent health service, and a local health department was organized on July 1, 1911 (*33*). Concurrently, the Rockefeller Sanitary Commission began supporting county hookworm eradication efforts (*17,35*). By 1920, 131 county health departments had been established; by 1931, 599 county health departments were providing services to one fifth of the U.S. population (*33*); in 1950, 86% of the U.S. population was served by a local health department, and 34,895 persons were employed full-time in public health agencies (*37*).

Local health departments. In 1945, the American Public Health Association proposed six minimum functions of local health departments (*38*). In 1988, the Institute of Medicine defined these functions as assessment, policy development, and assurance, and PHS has proposed 10 organizational practices to implement the three core functions (*39,40*). The national health objectives for 2000, released in 1990, provided a framework to monitor the progress of local health departments (*41*). In 1993, 2888 local health departments[†], representing county, city, and district health organizations operated in 3042 U.S. counties. Of the 2079 local health departments surveyed in 1993, nearly all provided vaccination services (96%) and tuberculosis treatment (86%); fewer provided family planning (68%) and cancer prevention programs (54%) (*42*).

Federal government. In 1798, the federal government established the Marine Hospital Service to provide health services to seamen (*15*). To recognize its expanding quarantine duties, in 1902, Congress changed the service's name to the Public Health and Marine Hospital Service and, in 1912, to the Public Health Service. In 1917, PHS' support of state and local public health activities began with a small grant to study rural health (*35*). During World War I, PHS received resources from Congress to assist states in treating venereal diseases. The Social Security Act of 1935, which authorized health grants to states, and a second Federal Venereal Diseases Control Act in 1938 (*13,14*), expanded the federal government's role in public health (*15,35*). In 1939, PHS and other health, education, and welfare agencies were combined in the Federal Security Agency, forerunner of the Department of Health and Human Services. In the 1930s, the federal government began to provide resources for specific conditions, beginning with care for crippled children. After World War II, the federal role in public health continued to expand with the Hospital Services and Construction Act (Hill-Burton) of 1946[§] (*15*). In 1930, Congress established the National Institutes of Health [formerly the Hygiene Laboratories of the Public Health Service] and the Food and Drug Administration. CDC was established in 1946 (*29*). Legislation to form Medicare and Medicaid was enacted in 1965, and the Occupational Safety and Health Administration and the Environmental Protection Agency were organized in 1970.

Although federal, state, and local health agencies and services have increased throughout the century, public health resources represent a small proportion of overall health-care costs. In 1993, federal, state, and local health agencies spent an estimated $14. 4 billion on core public health functions, 1%–2% of the $903 billion in total health-care expenditure (*43*).

[†]A local health department is an administrative or service unit of local or state government responsible for the health of a jurisdiction smaller than the state.
[§]T = P.L. 79-725

Public Health System — Continued

Conclusion

The public health infrastructure changed to provide the elements necessary for successful public health interventions: organized and systematic observations through morbidity and mortality surveillance, well-designed epidemiologic studies and other data to facilitate the decision-making process, and individuals and organizations to advocate for resources and to ensure that effective policies and programs were implemented and conducted properly. In 1999, public health is a complex partnership among federal agencies, state and local governments, nongovernment organizations, academia, and community members. In the 21st century, the success of the U.S. public health system will depend on its ability to change to meet new threats to the public's health.

Reported by: Epidemiology Program Office, Office of the Director, CDC.

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Community Needs Assessment and Morbidity Surveillance Following an Earthquake — Turkey, August 1999

On August 17, 1999, at 3:01 a.m., an earthquake registering 7.4 on the Richter scale, with an epicenter on the northern strand of the North Anatolian fault near the town of Gölcük, struck western Turkey. The earthquake resulted in an estimated 17,000 deaths and 10,000 missing persons. An additional 24,000 persons were injured, and approximately 600,000 were left homeless. Numerous aftershocks occurred during the following month, causing further damage and loss. To provide an objective postdisaster measure of needs to decision makers in the affected area, at the request of Turkey's Marmara University Department of Public Health, CDC conducted a community needs assessment in one camp and a study of clinic visits in two camps 2 and 6 weeks after the earthquake. This report summarizes the results of the assessment and studies, which indicate that housing and winter clothing were the primary needs in the camp

Earthquake — Continued

and upper respiratory ailments, depression, and musculoskeletal pain were the predominant illnesses.

CDC conducted the needs assessment in the Bahcecik camp that local authorities established 1 week after the earthquake in the Gölcük region, possibly the area most affected by the disaster. In collaboration with Marmara University Department of Public Health, local health authorities initiated health-care services for the camp, which had 248 tents. On October 1 and 2, CDC conducted a household survey using a systematic, random sample of a targeted 155 households. A household was defined as a unit of persons residing in one tent. One adult was interviewed from each selected household using a standardized questionnaire that focused on demographics, illnesses, injuries, sanitation, shelter, and medical needs.

Morbidity surveillance data were characterized during the subacute, post--earthquake phase at the Bahcecik camp clinic and the Izmir camp clinic in the Gölcük area. CDC reviewed logbook entries for two 8-day periods, from August 30 (the first day for which clinic records were available at both sites) through September 6 and from September 25 through October 2. For the first 8-day period, 468 and 534 logbook entries at the Bahcecik and Izmir camp clinics, respectively, were reviewed; for the second 8-day period, 411 and 669 logbook entries, respectively, were reviewed.

In Bahcecik, 154 households were visited, and 86 (56%) interviews were completed. The survey represented 339 persons (median household size: four persons). Of the 86 households, seven (8%) had a child aged ≤2 years, nine (10%) had a household member aged ≥65 years, and three households (4%) reported a pregnant female. Fifty-four (63%) reported that their homes were damaged and uninhabitable, and 22 (26%) reported their homes were destroyed completely.

The Bahcecik clinic provided medical care for persons in 85 (99%) of the surveyed households. Of the 86 households, one (1%) reported an earthquake-related death.* Members of 20 (23%) households sustained injuries, and lacerations accounted for 90% of the injuries. Sixty-nine households (80%) reported having at least one ill household member since the earthquake, representing 128 ill persons. Approximately 32 (25%) persons reported depression; 14 (44%) of those sought medical treatment. Twenty-four (19%) persons reported respiratory illness; 23 (96%) of those requested medical treatment. Twenty (17%) noted chronic diseases, specifically kidney problems, hypertension, and heart disease; 16 (80%) of those sought medical treatment. Thirteen (10%) experienced gastrointestinal illness; 11 (86%) of those sought medical treatment.

The availability of food, water, and sanitation was well maintained after the earthquake. Respondents from 75 (87%) of the 86 households reported that food was available and was provided mainly by the relief workers in the camp. Eighty-one (94%) households reported piped water as the major source of drinking water. Eighty-three (97%) households had access to showers. Most households (83 [97%]) reported using field latrines connected to septic tanks for human waste disposal, and 45 (52%) households reported the latrines as "clean" or "somewhat clean." In 77 (90%) households, members had access to transportation, and 83 (97%) households had garbage disposal by municipal collection. Electricity was not available for 79 (92%) households.

*This low percentage probably reflects that Turkish families generally live together in one household and that entire families either died or survived. It does not reflect friends, co-workers, and possible extended family members who were killed.

Earthquake — Continued

Logbook entries at Bahcecik camp clinic and Izmir camp clinic from August 30 through September 6 and September 25 through October 2 indicated that most visits were for illnesses rather than injuries (Table 1). The primary illnesses reported during the 8-day periods in both camps were upper respiratory tract infection, followed by musculoskeletal pain. All other illnesses, including diarrhea, represented no more than 10% of the total visits (Tables 2 and 3).

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Editorial Note: An earthquake of great magnitude is one of the most devastating events in nature. In Turkey, infrastructure damage and losses were an estimated $6.5 billion. In the Bahcecik camp, where 88% of the camp's population is homeless, the primary need is housing. Most inhabitants will remain in tents until they receive prefabricated houses. In addition, the low frequency of gastrointestinal diseases suggests that sanitary conditions at the camp are well maintained. Although 73 (85%) households indicated access to a medication source and direct observation showed a well-stocked medication supply area, the most common medications needed for diabetes, hypertension, depression, and analgesics and vitamins were not available according to those interviewed.

Following the assessment and studies, results were reported to the local health authorities of Turkey and the nongovernment organization. Recommendations included providing shelter, heat, and clothing suitable for winter conditions; providing

TABLE 1. Number and percentage of illnesses and injuries reported at Bahcecik camp and Izmir camp clinics — Turkey, 1999

	Illnesses		Injuries		
Camp	No.	(%)	No.	(%)	Total
Bahcecik					
Aug. 30–Sept. 6	434	(92.7)	34	(7.3)	**468**
Sept. 25–Oct. 2	382	(92.9)	29	(7.1)	**411**
Izmir					
Aug. 30–Sept. 6	492	(92.1)	42	(7.9)	**534**
Sept. 25–Oct. 2	628	(93.9)	41	(6.1)	**669**

TABLE 2. Number and percentage of illnesses reported at Bahcecik clinic 2 and 6 weeks after earthquake, by diagnosis and week — Turkey, 1999

Bahcecik week 2			Bahcecik week 6		
Diagnosis	No.	(%)	Diagnosis	No.	(%)
Upper respiratory tract infection	116	(24.8)	Upper respiratory tract infection	125	(24.8)
Musculoskeletal pain	32	(6.8)	Musculoskeletal pain	25	(6.0)
Watery diarrhea	28	(6.0)	Skin infection	17	(4.1)
Psychiatric illness	27	(5.8)	Dental/Oral disease	16	(3.9)
Hypertension	21	(4.5)	Hypertension	14	(3.3)

Earthquake — Continued

TABLE 3. Number and percentage of illnesses reported at Izmir clinic 2 and 6 weeks after earthquake, by diagnosis and week — Turkey, 1999

Izmir week 2			Izmir week 6		
Diagnosis	**No.**	**(%)**	**Diagnosis**	**No.**	**(%)**
Upper respiratory tract infection	126	(20.0)	Upper respiratory tract infection	168	(21.8)
Musculoskeletal	61	(9.6)	Musculoskeletal	52	(6.8)
Skin rash	41	(6.5)	Skin infection	24	(3.1)
Hypertension	40	(6.3)	Dyspepsia	21	(2.7)
Lower respiratory tract infection	35	(5.5)	Lower respiratory tract infection	21	(2.7)

mental health-care services, social activities, and community jobs to address community stress; continuing the level of medical care; and encouraging reporting of morbidity data from local camp clinics to regional health offices.

Rapid needs assessment of an affected population is an important initial step of response in a disaster and can minimize inappropriateness of relief in terms of delays and content (*1*). In addition, information from emergency medical surveillance may control the rumors of epidemics and help local health authorities of Turkey focus on allocating resources to address identified needs to reduce overcrowding and provide counseling.

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Imported Dengue — Florida, 1997–1998

Dengue fever is a viral disease transmitted primarily by the *Aedes aegypti* mosquito. There are four antigenically distinct serotypes of dengue virus (DEN-1, DEN-2, DEN-3 and DEN-4). Infection with any serotype may lead to an acute illness characterized by fever, headache, bone and joint pain and, occasionally, rash and hemorrhagic manifestations (*1*). Secondary infection with a different serotype can lead to a more serious form of the disease (i.e., dengue hemorrhagic fever [DHF]). Dengue incidence has recently increased in the Caribbean and Central America (*2*), including Cuba and the Bahamas, which are within 100 miles of Florida, and might increase the likelihood of its future autochthonous transmission in Florida. This report summarizes information about cases of imported dengue detected as a result of a laboratory-based active surveillance program implemented in Florida from April 1, 1997, through March 31, 1998.

Dengue surveillance program elements included implementation of an education program focusing on county health departments and commercial clinical laboratories, and enhancing the state laboratory's diagnostic capabilities. Dengue information packets were mailed to all 67 county health department epidemiologists in Florida. Packets contained a letter explaining the program and requesting participation, along with instructions for distributing the enclosed materials to hospital emergency departments, clinics, health departments, and infectious disease physicians within the

Imported Dengue — Continued

county. The letter included a reminder that dengue is a reportable disease in Florida and that testing would be performed free of charge. The dengue case definition, specimen requirements and transport instructions, and a dengue case investigation form were supplied.

Cooperative agreements were made with commercial clinical laboratories to promote submission of dengue samples. Under the agreements, specimens from suspected dengue cases were forwarded to the state laboratory for testing. In cases where specimens were tested at commercial laboratories only, dengue antibody positive results were forwarded to county health departments and then to the state laboratory for inclusion in this study.

State laboratory capabilities were enhanced to include testing for anti-dengue IgM antibodies. Acute and convalescent serum specimens were tested for dengue antibodies using the hemagglutination inhibition assay and IgM antibody capture enzyme linked immunosorbent assay (*3,4*). Specimens positive for IgM antibodies were forwarded to the Dengue Branch, CDC, in San Juan, Puerto Rico, for confirmation of serologic results, and acute phase samples were forwarded to CDC for virus isolation or identification by polymerase chain reaction (PCR) (*5,6*).

During the 12 months of active surveillance, 83 suspected dengue cases were investigated in Florida. Commercial clinical laboratories referred specimens from 36 (43%) of these cases. The remaining specimens were referred through county health departments, hospital laboratories, infection-control practitioners, or directly from physicians. Recent dengue infection was laboratory-diagnosed in 18 (22%) of these cases. Thirteen (72%) of the 18 positive dengue specimens were referred to the study by commercial laboratories. All four dengue serotypes were detected (by virus isolation and/or identification by PCR) in five of the cases studied. Dengue was ruled out as the etiologic agent in 24 (29%) cases. The remaining 41 (49%) cases were indeterminate because of a lack of convalescent serum samples.

The age of laboratory-confirmed case-patients ranged from 8 to 69 years (median: 38 years), and 14 (78%) were male. Antibody titers were suggestive of secondary dengue infection in 10 (56%) of the 18 cases. Two (11%) appeared to be primary infections, and laboratory tests necessary to determine infection status (primary versus secondary) were not available in the other six cases. Hemorrhagic manifestations were reported in seven (39%) of the laboratory-confirmed cases, one of which met the case criteria for DHF.

All case-patients reported recent (i.e., within 10 days before onset of illness) travel from countries with indigenous dengue transmission, and no local transmission was detected in Florida. The origin of travel of case-patients was Haiti (six), Puerto Rico (three), Colombia (two), Venezuela (two), Barbados (one), Nicaragua (one), and Thailand (one). The two other case-patients did not indicate a specific travel destination but reportedly had visited countries where dengue occurs. Dengue cases were detected in Dade (eight), Hillsborough (four), Orange (three), Palm Beach (two), and Broward (one) counties.

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Editorial note: Local transmission of dengue was last documented in Florida in 1934 (*7*). Although no local transmission of dengue was detected in Florida during this

Imported Dengue — Continued

investigation, many southern states may be at risk for transmission; dengue transmission has been detected in Texas (*8*). Two mosquito vectors (*Aedes aegypti* and *Ae albopictus*) are widely distributed in Florida, and many infected travelers return from areas where dengue is endemic and the resident population has essentially no immunity to dengue viruses.

Autochthonous transmission may result from importation of viremic cases to counties with *Ae aegypti* or *Ae albopictus*. This possibility should especially be considered if cases are reported from such localities over several years and if case-patients from these localities report travel to a country where dengue is endemic. Epi- demiologic data from imported cases should be shared on a timely basis with mosquito abatement programs to ensure an entomologic evaluation and appropriate control response by the locality where the case-patients reside. On the basis of the results of this study, surveillance efforts should be concentrated in counties with large populations and large numbers of international travelers and should intensify during dengue season (i.e., July–November) in the Caribbean because of the large number of case-patients who travel to this area.

The findings in this report indicate that dengue infections were imported into Florida in 1997 and 1998 more frequently than expected, based on the 10-year mean of 1.3 cases per year. In this and previous investigations, dengue has been underreported (*9,10*). Underreporting is common with passive surveillance systems. Active surveillance for dengue requires that state health departments educate the medical community and provide appropriate diagnostic laboratory support (*8*). Surveillance efforts should be enhanced in the high-risk areas identified in this study. Other states should consider enhanced dengue surveillance in areas with widespread mosquito vectors and large numbers of travelers returning from areas with endemic dengue.

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Notice to Readers — Continued

Notice to Readers

Epi Info 2000: A Course for Teachers and Practitioners of Epidemiologic Computing

CDC and Emory University's Rollins School of Public Health will cosponsor a course, "Epi Info 2000: A Course for Practitioners and Teachers of Epidemiologic Computing" on March 13–17, 2000, in Atlanta. The course is designed for practitioners or teachers of epidemiologic computing with intermediate to advanced skills in computing.

The course covers hands-on experience with the new Windows® version of Epi Info, programming Epi Info software at the intermediate to advanced level, methods of teaching epidemiologic computing, and computerized interactive exercises for teaching epidemiology and computing. There is a tuition charge.

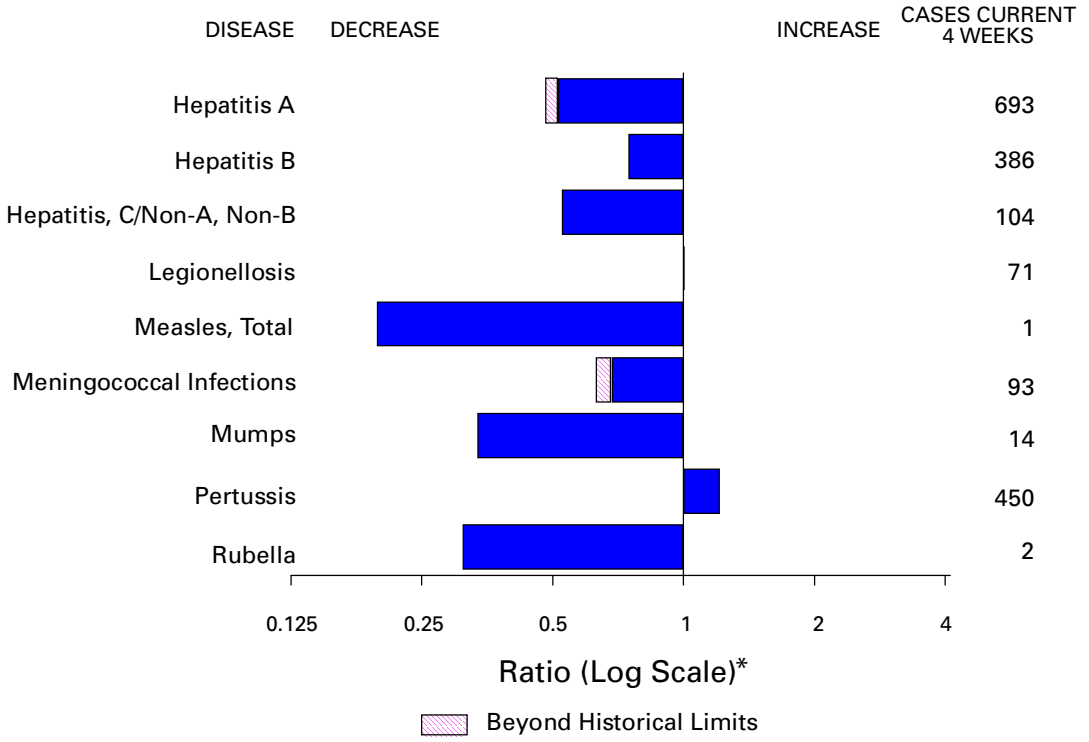
Additional information and applications are available from Emory University, The Rollins School of Public Health, International Health Dept (PIA), 1518 Clifton Rd., N.E., Room 746, Atlanta, GA 30322; telephone (404) 727-3485; fax (404) 727-4590; e-mail pvaleri@sph.emory.edu.

Notice to Readers

Combined Issues of *MMWR*

A December 31, 1999, issue of *MMWR* will not be published. The next issue will be Volume 48, Numbers 51 and 52, dated January 7, 2000. It will include the figures and tables of notifiable diseases and deaths for the weeks ending December 25, 1999, and January 1, 2000.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending December 18, 1999, 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 December 18, 1999 (50th Week)

	Cum. 1999		Cum. 1999
Anthrax	-	HIV infection, pediatric*§	137
Brucellosis*	47	Plague	8
Cholera	3	Poliomyelitis, paralytic	-
Congenital rubella syndrome	6	Psittacosis*	16
Cyclosporiasis*	51	Rabies, human	-
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	540
Encephalitis: California*	60	Streptococcal disease, invasive Group A	2,048
eastern equine*	6	Streptococcal toxic-shock syndrome*	36
St. Louis*	6	Syphilis, congenital¶	237
western equine*	1	Tetanus	32
Ehrlichiosis human granulocytic (HGE)*	150	Toxic-shock syndrome	113
human monocytic (HME)*	40	Trichinosis	9
Hansen Disease*	95	Typhoid fever	297
Hantavirus pulmonary syndrome*†	21	Yellow fever	1
Hemolytic uremic syndrome, post-diarrheal*	117		

-: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 from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update November 28, 1999.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	AIDS		Chlamydia		Cryptosporidiosis		*Escherichia coli* O157:H7*			
							NETSS		PHLIS	
	Cum. 1999†	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	40,933	43,859	576,331	573,378	2,292	3,592	3,375	2,862	2,308	2,147
NEW ENGLAND	2,090	1,728	28,927	19,436	159	148	396	329	343	279
Maine	75	28	904	1,001	30	31	39	36	-	-
N.H.	45	36	925	934	19	16	34	46	33	47
Vt.	16	18	453	398	36	26	32	21	21	18
Mass.	1,338	906	17,427	8,081	53	68	172	146	184	157
R.I.	96	119	2,251	2,226	6	7	27	13	26	1
Conn.	520	621	6,967	6,796	15	U	92	67	79	56
MID. ATLANTIC	10,473	11,961	56,003	59,556	418	561	315	296	92	86
Upstate N.Y.	1,196	1,434	N	N	176	330	253	215	-	-
N.Y. City	5,571	6,850	21,963	25,226	116	206	11	14	17	13
N.J.	1,932	2,014	10,095	11,356	36	25	51	67	46	52
Pa.	1,774	1,663	23,945	22,974	90	N	N	N	29	21
E.N. CENTRAL	2,801	3,185	82,868	97,431	567	725	703	454	497	370
Ohio	448	645	26,294	26,622	66	73	253	126	208	77
Ind.	320	485	10,930	10,838	40	61	114	102	64	54
Ill.	1,345	1,188	25,133	25,660	67	84	221	111	81	80
Mich.	555	680	20,511	20,785	49	38	115	115	78	71
Wis.	133	187	U	13,526	345	469	N	N	66	88
W.N. CENTRAL	940	840	33,533	33,858	204	335	606	475	414	403
Minn.	178	163	6,683	6,787	78	142	234	196	184	211
Iowa	77	68	4,649	4,356	55	65	114	91	73	59
Mo.	449	400	12,427	12,151	29	27	60	53	66	64
N. Dak.	6	5	707	998	18	30	17	12	14	15
S. Dak.	15	15	1,522	1,509	7	25	47	35	62	40
Nebr.	65	66	3,319	2,694	16	35	113	52	-	-
Kans.	150	123	4,226	5,363	1	11	21	36	15	14
S. ATLANTIC	11,305	11,374	121,497	111,069	379	343	346	248	180	179
Del.	159	152	2,674	2,493	-	3	6	-	3	2
Md.	1,344	1,607	10,838	7,201	17	19	42	43	4	15
D.C.	637	808	N	N	8	25	1	1	U	U
Va.	782	908	13,391	13,376	27	20	75	N	59	55
W. Va.	64	77	1,240	2,306	3	2	14	13	11	10
N.C.	739	753	20,705	21,209	33	N	74	56	52	47
S.C.	919	720	12,830	17,493	-	-	21	15	14	12
Ga.	1,581	1,173	31,191	22,989	136	127	37	76	-	-
Fla.	5,080	5,176	28,628	24,002	155	147	76	44	37	38
E.S. CENTRAL	1,796	1,820	44,139	40,018	42	26	133	120	58	64
Ky.	255	263	7,014	6,083	8	10	47	36	-	-
Tenn.	706	658	13,856	13,621	11	10	54	54	38	40
Ala.	449	484	12,314	10,007	14	N	26	24	16	20
Miss.	386	415	10,955	10,307	9	6	6	6	4	4
W.S. CENTRAL	4,177	5,350	81,555	86,314	84	914	128	103	124	107
Ark.	188	203	5,585	3,941	2	6	15	11	8	10
La.	813	914	11,220	14,689	22	16	9	5	14	7
Okla.	123	282	7,763	9,021	12	N	31	25	27	9
Tex.	3,053	3,951	56,987	58,663	48	892	73	62	75	81
MOUNTAIN	1,608	1,506	29,988	32,694	99	122	324	363	225	247
Mont.	13	29	1,496	1,277	13	10	25	16	-	5
Idaho	22	32	1,670	1,941	8	17	68	43	43	25
Wyo.	11	5	759	690	1	2	16	53	14	55
Colo.	290	286	5,417	8,395	14	19	107	90	88	69
N. Mex.	82	203	3,916	3,959	42	47	13	19	7	20
Ariz.	819	588	11,863	11,105	13	18	37	43	23	27
Utah	142	128	2,085	2,091	N	N	38	75	48	22
Nev.	229	235	2,782	3,236	8	9	20	24	2	24
PACIFIC	5,743	6,095	97,821	93,002	340	418	424	474	375	412
Wash.	337	386	11,370	10,527	N	N	167	109	159	131
Oreg.	208	166	5,698	5,528	93	68	74	107	68	101
Calif.	5,089	5,365	76,276	72,577	247	346	171	251	136	164
Alaska	15	17	1,820	1,842	-	1	1	7	1	-
Hawaii	94	161	2,657	2,528	-	3	11	-	11	16
Guam	10	2	299	415	-	-	N	N	U	U
P.R.	1,180	1,601	U	U	-	N	9	5	U	U
V.I.	35	31	U	U	U	U	U	U	U	U
Amer. Samoa	-	-	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	U	U	U	U	U	U	U

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

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

†Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update November 28, 1999.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	Gonorrhea		Hepatitis C/NA,NB		Legionellosis		Lyme Disease	
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	315,263	341,786	3,071	3,199	915	1,244	12,551	15,457
NEW ENGLAND	8,742	5,845	14	58	82	84	3,549	4,590
Maine	71	65	2	-	3	1	41	78
N.H.	106	89	-	-	8	7	23	43
Vt.	47	36	7	6	14	7	23	11
Mass.	4,825	2,197	2	49	31	33	967	694
R.I.	572	404	3	3	12	21	464	650
Conn.	3,121	3,054	-	-	14	15	2,031	3,114
MID. ATLANTIC	36,151	37,196	95	210	186	312	7,078	8,688
Upstate N.Y.	6,616	7,047	60	105	60	107	3,916	4,041
N.Y. City	11,762	11,576	-	-	9	36	41	230
N.J.	5,962	7,653	-	U	18	18	922	1,859
Pa.	11,811	10,920	35	105	99	151	2,199	2,558
E.N. CENTRAL	55,121	66,962	1,435	658	248	408	177	756
Ohio	15,957	17,519	4	8	81	129	74	46
Ind.	5,972	6,376	1	5	46	77	21	37
Ill.	18,873	21,213	45	40	23	53	12	14
Mich.	14,319	15,674	794	464	60	82	1	12
Wis.	U	6,180	591	141	38	67	69	647
W.N. CENTRAL	14,357	16,994	299	44	53	64	290	226
Minn.	2,563	2,626	10	12	13	7	220	173
Iowa	1,155	1,468	-	8	14	10	20	26
Mo.	7,179	8,943	277	15	14	16	26	12
N. Dak.	71	78	1	-	2	-	1	-
S. Dak.	189	212	-	-	3	4	-	-
Nebr.	1,374	1,134	5	5	7	19	11	4
Kans.	1,826	2,533	6	4	-	8	12	11
S. ATLANTIC	92,066	91,941	190	118	148	144	1,146	885
Del.	1,615	1,488	1	-	15	13	64	66
Md.	9,151	9,463	41	22	32	37	806	618
D.C.	3,365	4,301	1	-	4	8	6	4
Va.	9,151	9,244	11	12	39	22	118	69
W. Va.	387	832	17	7	N	N	17	13
N.C.	18,440	18,410	34	25	15	14	73	57
S.C.	8,471	10,989	22	11	11	11	7	7
Ga.	21,117	18,840	1	9	3	8	-	5
Fla.	20,369	18,374	62	32	29	31	55	46
E.S. CENTRAL	35,165	38,376	302	273	45	65	92	111
Ky.	3,192	3,577	24	21	20	26	10	26
Tenn.	11,092	11,753	95	164	21	23	50	44
Ala.	10,938	12,643	1	5	4	9	19	24
Miss.	9,943	10,403	182	83	-	7	13	17
W.S. CENTRAL	44,770	53,316	314	553	23	34	43	31
Ark.	2,984	3,852	18	22	-	2	4	7
La.	8,880	12,640	102	112	2	4	-	7
Okla.	3,792	5,054	15	20	3	12	4	2
Tex.	29,114	31,770	179	399	18	16	35	15
MOUNTAIN	8,939	8,872	154	367	49	72	18	18
Mont.	54	48	5	7	-	2	-	-
Idaho	82	173	8	86	3	3	5	6
Wyo.	36	34	50	93	-	1	3	1
Colo.	2,316	1,999	23	32	13	18	-	-
N. Mex.	816	928	8	97	1	2	1	4
Ariz.	4,211	4,066	46	11	7	17	2	1
Utah	230	217	6	21	19	21	5	-
Nev.	1,194	1,407	8	20	6	8	2	6
PACIFIC	19,952	22,284	268	918	81	61	158	152
Wash.	2,013	1,887	20	22	17	12	10	7
Oreg.	827	816	22	19	N	N	14	21
Calif.	16,436	18,776	226	823	63	47	134	123
Alaska	291	319	-	-	1	1	-	1
Hawaii	385	486	-	54	-	1	N	N
Guam	38	71	1	1	-	2	-	1
P.R.	332	369	-	-	-	-	N	N
V.I.	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U

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

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
					NETSS		PHLIS	
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	1,290	1,438	5,713	7,021	36,829	41,026	29,407	32,856
NEW ENGLAND	66	69	869	1,419	2,126	2,451	2,050	2,237
Maine	3	5	171	234	128	163	99	66
N.H.	2	5	50	77	136	178	140	215
Vt.	4	1	88	68	92	141	85	113
Mass.	24	26	218	495	1,135	1,286	1,137	1,322
R.I.	5	14	95	99	129	142	147	34
Conn.	28	18	247	446	506	541	442	487
MID. ATLANTIC	326	412	1,105	1,561	4,708	6,492	4,082	5,637
Upstate N.Y.	71	88	789	1,068	1,368	1,559	1,268	1,333
N.Y. City	169	233	U	U	1,333	1,855	1,173	1,430
N.J.	48	57	166	218	989	1,459	685	1,358
Pa.	38	34	150	275	1,018	1,619	956	1,516
E.N. CENTRAL	143	141	146	123	5,213	6,135	3,336	4,746
Ohio	18	15	36	57	1,279	1,465	1,046	1,118
Ind.	21	10	13	12	523	662	406	517
Ill.	54	57	10	N	1,515	1,886	399	1,549
Mich.	40	47	87	35	927	1,141	922	1,064
Wis.	10	12	-	19	969	981	563	498
W.N. CENTRAL	73	99	671	694	2,144	2,239	2,206	2,276
Minn.	41	63	112	116	629	564	662	642
Iowa	13	7	155	147	258	353	197	286
Mo.	14	14	14	42	689	605	888	833
N. Dak.	-	3	137	143	51	60	49	67
S. Dak.	-	1	163	151	96	124	116	129
Nebr.	1	1	3	7	202	187	78	46
Kans.	4	10	87	88	219	346	216	273
S. ATLANTIC	344	308	2,049	2,274	8,698	8,439	6,100	6,018
Del.	1	3	43	49	139	77	153	118
Md.	94	88	389	434	860	898	983	878
D.C.	18	19	-	-	69	83	U	U
Va.	71	59	561	538	1,225	1,074	980	844
W. Va.	3	2	106	76	163	150	150	161
N.C.	31	29	404	548	1,269	1,255	1,243	1,400
S.C.	17	6	133	144	682	613	492	534
Ga.	29	37	231	290	1,509	1,692	1,644	1,520
Fla.	80	65	182	195	2,782	2,597	455	563
E.S. CENTRAL	24	34	252	269	2,081	2,303	1,066	1,550
Ky.	7	7	35	31	400	355	-	124
Tenn.	8	16	93	139	513	587	513	702
Ala.	7	6	123	97	588	684	476	566
Miss.	2	5	1	2	580	677	77	158
W.S. CENTRAL	16	54	94	28	3,598	4,777	3,546	3,139
Ark.	3	1	14	28	626	594	120	372
La.	10	14	-	-	334	749	568	795
Okla.	2	3	80	N	406	473	320	228
Tex.	1	36	-	-	2,232	2,961	2,538	1,744
MOUNTAIN	44	62	197	249	2,997	2,469	2,437	1,974
Mont.	4	1	59	54	81	76	1	43
Idaho	3	8	5	N	127	120	98	95
Wyo.	1	-	44	66	67	64	49	59
Colo.	17	18	1	42	690	526	689	493
N. Mex.	2	12	9	6	368	293	245	260
Ariz.	9	9	66	48	932	802	783	680
Utah	4	2	8	27	547	347	519	122
Nev.	4	12	5	6	185	241	53	222
PACIFIC	254	259	330	404	5,264	5,721	4,584	5,279
Wash.	28	20	-	-	643	501	795	677
Oreg.	21	16	2	7	409	318	497	327
Calif.	192	210	321	374	3,833	4,553	2,996	3,938
Alaska	1	4	7	23	53	56	30	37
Hawaii	12	9	-	-	326	293	266	300
Guam	-	2	-	-	24	44	U	U
P.R.	-	-	70	50	460	795	U	U
V.I.	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U

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

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

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	Shigellosis*				Syphilis (Primary & Secondary)		Tuberculosis	
	NETSS		PHLIS					
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999†	Cum. 1998†
UNITED STATES	15,351	21,622	7,515	12,056	6,036	6,827	13,398	16,565
NEW ENGLAND	839	405	786	358	93	77	413	438
Maine	5	14	-	-	-	1	18	12
N.H.	17	16	17	22	1	2	10	-
Vt.	6	7	4	4	3	4	2	5
Mass.	713	261	687	254	70	43	234	262
R.I.	31	36	18	13	3	1	39	52
Conn.	67	71	60	65	16	26	110	107
MID. ATLANTIC	923	2,328	454	1,662	186	321	2,409	2,989
Upstate N.Y.	284	624	67	223	23	37	308	367
N.Y. City	289	698	82	577	79	83	1,286	1,399
N.J.	194	657	155	608	51	105	479	606
Pa.	156	349	150	254	33	96	336	617
E.N. CENTRAL	2,912	2,931	1,293	1,540	1,126	996	1,273	1,635
Ohio	416	537	141	145	87	130	248	224
Ind.	332	175	101	43	424	208	137	158
Ill.	1,089	1,538	592	1,279	385	405	531	791
Mich.	489	270	382	4	230	194	272	355
Wis.	586	411	77	69	U	59	85	107
W.N. CENTRAL	1,096	1,051	723	612	108	133	453	475
Minn.	249	298	229	327	9	9	189	148
Iowa	67	67	48	45	9	3	54	51
Mo.	638	200	352	134	72	100	152	166
N. Dak.	3	10	2	3	-	-	6	10
S. Dak.	18	32	10	23	-	1	17	17
Nebr.	84	369	35	19	8	7	16	30
Kans.	37	75	47	61	10	13	19	53
S. ATLANTIC	2,428	4,220	492	1,251	1,941	2,490	2,813	3,084
Del.	13	46	9	37	8	21	12	34
Md.	159	200	58	67	311	656	259	286
D.C.	51	37	U	U	60	85	49	103
Va.	130	195	61	87	150	144	268	280
W. Va.	8	11	5	8	2	3	37	41
N.C.	200	346	86	180	421	706	394	491
S.C.	124	183	62	97	246	313	222	270
Ga.	231	1,060	85	246	407	287	565	515
Fla.	1,512	2,142	126	529	336	275	1,007	1,064
E.S. CENTRAL	1,102	1,512	485	1,173	1,119	1,185	846	1,190
Ky.	231	151	-	45	99	103	166	157
Tenn.	600	855	428	901	630	561	333	458
Ala.	117	451	47	220	205	271	291	369
Miss.	154	55	10	7	185	250	56	206
W.S. CENTRAL	2,438	4,545	2,337	1,420	896	1,044	1,469	2,373
Ark.	74	202	23	64	79	108	161	144
La.	118	333	128	285	208	419	U	278
Okla.	456	636	153	198	175	96	129	161
Tex.	1,790	3,374	2,033	873	434	421	1,179	1,790
MOUNTAIN	1,158	1,262	731	746	230	229	429	548
Mont.	9	8	-	3	1	-	13	19
Idaho	28	20	12	14	1	2	15	11
Wyo.	3	3	1	1	-	1	3	4
Colo.	194	225	155	164	2	10	U	72
N. Mex.	150	296	94	176	11	22	62	67
Ariz.	614	598	399	333	207	175	215	211
Utah	70	47	64	35	2	4	39	49
Nev.	90	65	6	20	6	15	82	115
PACIFIC	2,455	3,368	214	3,294	337	352	3,293	3,833
Wash.	118	224	99	190	64	27	168	255
Oreg.	95	190	85	154	10	5	99	130
Calif.	2,205	2,893	-	2,893	259	316	2,793	3,222
Alaska	4	11	3	7	1	1	59	54
Hawaii	33	50	27	50	3	3	174	172
Guam	8	39	U	U	1	1	11	84
P.R.	111	63	U	U	155	170	41	140
V.I.	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U

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

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

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported*		Total	
	Cum. 1999†	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	1999	Cum. 1999	1999	Cum. 1999	Cum. 1999	Cum. 1998
UNITED STATES	1,105	1,029	16,017	21,471	6,130	9,235	-	60	-	25	85	90
NEW ENGLAND	98	69	293	287	134	214	-	6	-	5	11	3
Maine	8	4	14	20	1	5	U	-	U	-	-	-
N.H.	21	10	18	15	16	19	-	-	-	1	1	-
Vt.	5	9	19	17	3	10	-	-	-	-	-	1
Mass.	37	39	113	122	41	78	-	5	-	3	8	2
R.I.	6	6	26	17	34	68	-	-	-	-	-	-
Conn.	21	1	103	96	39	34	-	1	-	1	2	-
MID. ATLANTIC	173	168	932	1,656	575	1,188	-	-	-	2	2	14
Upstate N.Y.	80	63	265	350	176	234	-	-	-	2	2	2
N.Y. City	41	43	310	584	202	412	-	-	-	-	-	-
N.J.	49	51	112	334	41	201	U	-	U	-	-	8
Pa.	3	11	245	388	156	341	-	-	-	-	-	4
E.N. CENTRAL	163	174	2,727	3,557	638	1,379	-	1	-	2	3	16
Ohio	58	47	644	359	90	75	-	-	-	-	-	1
Ind.	24	43	109	163	43	109	-	1	-	1	2	3
Ill.	66	64	707	779	1	226	-	-	-	-	-	1
Mich.	14	13	1,200	2,073	480	472	-	-	-	1	1	10
Wis.	1	7	67	183	24	497	U	-	U	-	-	1
W.N. CENTRAL	86	88	884	1,295	348	399	-	1	-	-	1	-
Minn.	47	66	95	130	54	49	-	1	-	-	1	-
Iowa	8	3	144	399	39	54	-	-	-	-	-	-
Mo.	22	11	534	593	207	241	-	-	-	-	-	-
N. Dak.	1	-	3	3	2	4	U	-	U	-	-	-
S. Dak.	1	1	9	39	1	2	-	-	-	-	-	-
Nebr.	3	1	59	26	18	22	-	-	-	-	-	-
Kans.	4	6	40	105	27	27	U	-	U	-	-	-
S. ATLANTIC	258	184	1,996	1,980	1,207	1,042	-	14	-	6	20	8
Del.	-	1	2	6	1	4	-	-	-	-	-	1
Md.	68	53	350	399	166	135	-	-	-	-	-	1
D.C.	5	-	59	64	24	18	-	-	-	-	-	-
Va.	22	19	175	213	96	99	-	14	-	4	18	2
W. Va.	7	6	39	7	23	10	-	-	-	-	-	-
N.C.	35	24	156	123	212	243	U	-	U	-	-	-
S.C.	6	3	47	46	65	52	-	-	-	-	-	-
Ga.	68	50	449	650	177	145	-	-	-	-	-	2
Fla.	47	28	719	472	443	336	-	-	-	2	2	2
E.S. CENTRAL	62	61	403	401	462	483	-	2	-	-	2	2
Ky.	7	7	63	32	43	48	U	2	U	-	2	-
Tenn.	35	36	174	221	211	268	-	-	-	-	-	1
Ala.	17	15	55	79	78	73	-	-	-	-	-	1
Miss.	3	3	111	69	130	94	-	-	-	-	-	-
W.S. CENTRAL	46	54	3,612	3,908	803	2,027	-	10	-	4	14	-
Ark.	2	-	68	79	69	104	U	5	U	-	5	-
La.	7	21	73	114	77	163	U	-	U	-	-	-
Okla.	33	30	435	605	129	121	-	-	-	-	-	-
Tex.	4	3	3,036	3,110	528	1,639	U	5	U	4	9	-
MOUNTAIN	106	117	1,251	3,017	545	790	-	4	-	-	4	5
Mont.	3	-	17	94	17	5	U	-	U	-	-	-
Idaho	1	2	45	233	29	48	-	-	-	-	-	-
Wyo.	1	1	8	37	13	10	-	-	-	-	-	-
Colo.	11	21	208	333	92	102	-	-	-	-	-	-
N. Mex.	19	8	51	148	169	309	-	-	-	-	-	-
Ariz.	56	60	725	1,765	140	170	-	1	-	-	1	5
Utah	11	6	66	190	37	65	-	2	-	-	2	-
Nev.	4	19	131	217	48	81	U	1	U	-	1	-
PACIFIC	113	114	3,919	5,370	1,418	1,713	-	22	-	6	28	42
Wash.	7	9	377	928	74	108	-	-	-	-	-	1
Oreg.	40	41	238	427	100	196	-	9	-	-	9	-
Calif.	48	50	3,271	3,944	1,213	1,378	U	13	U	4	17	8
Alaska	9	4	12	17	17	13	-	-	-	-	-	33
Hawaii	9	10	21	54	14	18	-	-	-	2	2	-
Guam	-	-	2	1	2	2	U	1	U	-	1	-
P.R.	1	2	215	82	160	242	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U	U	U	U	U

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

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

†Of 216 cases among children aged <5 years, serotype was reported for 109 and of those, 31 were type b.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending December 18, 1999, and December 19, 1998 (50th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998
UNITED STATES	2,223	2,537	5	327	627	120	5,696	6,656	-	235	355
NEW ENGLAND	107	113	-	8	10	14	720	1,028	-	7	38
Maine	5	7	U	-	-	U	-	5	U	-	-
N.H.	13	12	-	1	-	-	78	123	-	-	-
Vt.	5	5	-	1	-	5	81	78	-	-	-
Mass.	61	56	-	4	6	4	492	763	-	7	8
R.I.	7	8	-	2	1	5	38	13	-	-	1
Conn.	16	25	-	-	3	-	31	46	-	-	29
MID. ATLANTIC	208	274	-	35	192	40	953	635	-	25	149
Upstate N.Y.	68	78	-	14	13	40	763	330	-	21	114
N.Y. City	50	33	-	3	155	-	10	47	-	-	19
N.J.	47	57	U	-	6	U	12	29	U	1	14
Pa.	43	106	-	18	18	-	168	229	-	3	2
E.N. CENTRAL	377	389	3	46	80	25	567	843	-	2	-
Ohio	129	139	2	20	29	23	291	282	-	-	-
Ind.	69	72	-	5	7	1	75	173	-	1	-
Ill.	96	101	1	12	10	-	82	135	-	1	-
Mich.	45	44	-	7	31	1	67	70	-	-	-
Wis.	38	33	U	2	3	U	52	183	U	-	-
W.N. CENTRAL	230	223	1	14	33	3	425	595	-	127	40
Minn.	50	35	-	1	13	-	226	342	-	5	-
Iowa	42	44	1	8	11	-	69	74	-	29	-
Mo.	93	78	-	1	4	3	64	48	-	3	2
N. Dak.	4	5	U	1	2	U	18	4	U	-	-
S. Dak.	11	8	-	-	-	-	7	8	-	-	-
Nebr.	12	17	-	-	-	-	6	17	-	90	-
Kans.	18	36	U	3	3	U	35	102	U	-	38
S. ATLANTIC	412	435	-	50	49	9	417	338	-	37	19
Del.	8	2	-	-	-	1	6	5	-	-	-
Md.	54	34	-	7	-	-	107	65	-	1	1
D.C.	2	3	-	2	-	-	1	1	-	-	-
Va.	55	48	-	10	10	-	51	50	-	-	1
W. Va.	8	18	-	-	-	-	3	4	-	-	-
N.C.	46	57	U	8	11	U	93	103	U	35	13
S.C.	44	57	-	5	7	1	19	27	-	-	-
Ga.	61	97	-	4	1	-	40	27	-	-	-
Fla.	134	119	-	14	20	7	97	56	-	1	4
E.S. CENTRAL	148	197	1	14	19	-	88	155	-	1	2
Ky.	32	37	U	-	1	U	25	85	U	-	-
Tenn.	59	69	-	-	2	-	40	37	-	-	2
Ala.	33	54	1	11	9	-	21	27	-	1	-
Miss.	24	37	-	3	7	-	2	6	-	-	-
W.S. CENTRAL	174	294	-	33	60	-	158	364	-	15	89
Ark.	35	31	U	-	13	U	19	84	U	6	-
La.	34	56	U	3	7	U	3	9	U	-	-
Okla.	31	41	-	1	-	-	12	33	-	-	-
Tex.	74	166	U	29	40	U	124	238	U	9	89
MOUNTAIN	139	146	-	28	40	22	761	1,207	-	16	5
Mont.	4	4	U	-	-	U	2	13	U	-	-
Idaho	13	13	-	3	7	1	140	239	-	-	-
Wyo.	5	8	-	-	1	-	2	8	-	-	-
Colo.	36	29	-	5	7	6	213	341	-	1	-
N. Mex.	15	26	N	N	N	9	210	98	-	-	1
Ariz.	42	43	-	8	6	5	122	201	-	13	1
Utah	16	13	-	7	5	1	61	266	-	1	2
Nev.	8	10	U	5	14	U	11	41	U	1	1
PACIFIC	428	466	-	99	144	7	1,607	1,491	-	5	13
Wash.	65	64	-	2	11	7	616	330	-	-	8
Oreg.	77	87	N	N	N	-	58	89	-	-	-
Calif.	271	307	U	82	106	U	894	1,032	U	5	3
Alaska	6	3	-	3	3	-	5	15	-	-	-
Hawaii	9	5	-	12	24	-	34	25	-	-	2
Guam	2	2	U	1	5	U	1	1	U	-	-
P.R.	8	11	-	-	7	-	20	9	-	-	14
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U	U	U	U

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

TABLE IV. Deaths in 122 U.S. cities,* week ending December 18, 1999 (50th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	461	341	72	38	5	5	46
Boston, Mass.	U	U	U	U	U	U	U
Bridgeport, Conn.	47	39	7	1	-	-	5
Cambridge, Mass.	16	11	4	1	-	-	-
Fall River, Mass.	19	18	1	-	-	-	2
Hartford, Conn.	51	39	8	4	-	-	8
Lowell, Mass.	29	26	2	-	-	1	3
Lynn, Mass.	11	4	4	3	-	-	-
New Bedford, Mass.	21	17	3	1	-	-	3
New Haven, Conn.	34	25	3	4	1	1	4
Providence, R.I.	81	53	18	8	-	2	5
Somerville, Mass.	5	4	1	-	-	-	2
Springfield, Mass.	31	25	2	3	-	1	4
Waterbury, Conn.	53	37	10	4	2	-	3
Worcester, Mass.	63	43	9	9	2	-	7
MID. ATLANTIC	2,320	1,634	431	168	44	42	95
Albany, N.Y.	57	46	8	3	-	-	4
Allentown, Pa.	U	U	U	U	U	U	U
Buffalo, N.Y.	52	39	9	1	-	3	7
Camden, N.J.	21	16	4	1	-	-	1
Elizabeth, N.J.	21	18	2	-	1	-	1
Erie, Pa.	49	31	13	3	2	-	2
Jersey City, N.J.	33	23	6	4	-	-	-
New York City, N.Y.	1,241	867	241	88	20	24	25
Newark, N.J.	65	28	18	18	1	-	4
Paterson, N.J.	18	11	4	2	-	1	-
Philadelphia, Pa.	300	200	56	30	8	6	16
Pittsburgh, Pa.§	72	49	11	6	6	-	4
Reading, Pa.	36	26	6	2	1	1	3
Rochester, N.Y.	143	114	21	3	3	2	13
Schenectady, N.Y.	31	23	5	2	1	-	-
Scranton, Pa.	35	30	3	1	1	-	3
Syracuse, N.Y.	104	81	18	1	-	4	10
Trenton, N.J.	27	18	5	3	-	1	2
Utica, N.Y.	15	14	1	-	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,050	1,408	386	152	52	50	158
Akron, Ohio	51	34	8	4	4	1	6
Canton, Ohio	35	29	4	2	-	-	3
Chicago, Ill.	382	232	88	39	15	6	32
Cincinnati, Ohio	101	68	17	4	2	10	7
Cleveland, Ohio	147	102	28	9	2	6	6
Columbus, Ohio	174	128	28	11	3	4	21
Dayton, Ohio	122	91	20	8	2	1	8
Detroit, Mich.	193	116	46	19	6	6	11
Evansville, Ind.	15	13	2	-	-	-	4
Fort Wayne, Ind.	60	47	7	6	-	-	4
Gary, Ind.	11	5	4	2	-	-	-
Grand Rapids, Mich.	42	26	9	6	1	-	6
Indianapolis, Ind.	170	115	34	11	4	6	14
Lansing, Mich.	38	30	6	-	2	-	6
Milwaukee, Wis.	132	96	17	13	2	4	8
Peoria, Ill.	52	40	8	-	4	-	3
Rockford, Ill.	70	53	11	4	-	2	5
South Bend, Ind.	57	46	8	2	1	-	3
Toledo, Ohio	127	85	29	9	3	1	10
Youngstown, Ohio	71	52	12	3	1	3	1
W.N. CENTRAL	958	670	181	57	36	14	74
Des Moines, Iowa	146	106	26	8	3	3	10
Duluth, Minn.	28	23	4	1	-	-	3
Kansas City, Kans.	29	14	10	3	1	1	2
Kansas City, Mo.	108	73	24	7	4	-	9
Lincoln, Nebr.	35	28	5	1	1	-	2
Minneapolis, Minn.	188	147	24	8	7	2	23
Omaha, Nebr.	104	74	14	10	6	-	13
St. Louis, Mo.	121	65	38	8	4	6	-
St. Paul, Minn.	82	63	14	3	2	-	8
Wichita, Kans.	117	77	22	8	8	2	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,051	692	232	76	29	21	95
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	237	139	57	25	12	4	22
Charlotte, N.C.	100	76	21	2	1	-	11
Jacksonville, Fla.	150	108	27	7	4	3	15
Miami, Fla.	107	58	27	16	5	1	10
Norfolk, Va.	52	28	15	5	1	3	-
Richmond, Va.	U	U	U	U	U	U	U
Savannah, Ga.	49	33	10	2	3	1	8
St. Petersburg, Fla.	88	66	15	4	1	2	6
Tampa, Fla.	243	169	50	15	2	7	23
Washington, D.C.	U	U	U	U	U	U	U
Wilmington, Del.	25	15	10	-	-	-	-
E.S. CENTRAL	972	667	211	64	15	15	76
Birmingham, Ala.	197	139	38	11	4	5	15
Chattanooga, Tenn.	105	80	15	9	1	-	10
Knoxville, Tenn.	116	83	23	8	2	-	10
Lexington, Ky.	75	44	21	5	1	4	6
Memphis, Tenn.	179	119	44	10	4	2	14
Mobile, Ala.	108	73	29	6	-	-	6
Montgomery, Ala.	50	31	15	4	-	-	6
Nashville, Tenn.	142	98	26	11	3	4	9
W.S. CENTRAL	1,545	1,015	342	108	37	43	125
Austin, Tex.	78	48	17	7	4	2	1
Baton Rouge, La.	55	29	11	7	2	6	3
Corpus Christi, Tex.	60	39	11	5	2	3	9
Dallas, Tex.	190	118	39	22	10	1	4
El Paso, Tex.	89	51	25	8	3	2	9
Ft. Worth, Tex.	121	82	30	6	1	2	9
Houston, Tex.	435	308	92	23	4	8	50
Little Rock, Ark.	60	41	13	1	1	4	5
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	240	152	51	17	8	12	16
Shreveport, La.	73	54	17	1	-	1	7
Tulsa, Okla.	144	93	36	11	2	2	12
MOUNTAIN	1,134	786	227	88	22	11	119
Albuquerque, N.M.	131	91	29	9	1	1	22
Boise, Idaho	43	33	5	4	-	1	7
Colo. Springs, Colo.	81	60	11	7	3	-	5
Denver, Colo.	115	83	22	7	3	-	7
Las Vegas, Nev.	235	161	47	16	9	2	23
Ogden, Utah	27	22	3	2	-	-	1
Phoenix, Ariz.	182	111	50	17	2	2	20
Pueblo, Colo.	39	28	8	3	-	-	3
Salt Lake City, Utah	105	68	20	10	3	4	17
Tucson, Ariz.	176	129	32	13	1	1	14
PACIFIC	1,416	1,049	241	83	23	19	142
Berkeley, Calif.	12	9	2	-	-	1	2
Fresno, Calif.	108	79	23	6	-	-	10
Glendale, Calif.	9	6	3	-	-	-	-
Honolulu, Hawaii	82	60	15	4	1	2	13
Long Beach, Calif.	81	54	19	5	1	2	12
Los Angeles, Calif.	251	176	45	17	9	4	7
Pasadena, Calif.	34	31	3	-	-	-	6
Portland, Oreg.	121	92	22	5	1	1	8
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	138	101	23	11	1	2	14
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	229	183	26	12	5	3	33
Santa Cruz, Calif.	38	26	7	5	-	-	3
Seattle, Wash.	148	102	30	11	3	2	15
Spokane, Wash.	69	56	10	2	-	1	10
Tacoma, Wash.	96	74	13	5	2	1	9
TOTAL	11,907¶	8,262	2,323	834	263	220	930

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.

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