

**MMWR**<sup>TM</sup>  
**MORBIDITY AND MORTALITY  
WEEKLY REPORT**

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*Achievements in Public Health, 1900–1999*

**Fluoridation of Drinking Water to Prevent Dental Caries**

Fluoridation of community drinking water is a major factor responsible for the decline in dental caries (tooth decay) during the second half of the 20th century. The history of water fluoridation is a classic example of clinical observation leading to epidemiologic investigation and community-based public health intervention. Although other fluoride-containing products are available, water fluoridation remains the most equitable and cost-effective method of delivering fluoride to all members of most communities, regardless of age, educational attainment, or income level.

**Dental Caries**

Dental caries is an infectious, communicable, multifactorial disease in which bacteria dissolve the enamel surface of a tooth (1). Unchecked, the bacteria then may penetrate the underlying dentin and progress into the soft pulp tissue. Dental caries can result in loss of tooth structure and discomfort. Untreated caries can lead to incapacitating pain, a bacterial infection that leads to pulpal necrosis, tooth extraction and loss of dental function, and may progress to an acute systemic infection. The major etiologic factors for this disease are specific bacteria in dental plaque (particularly *Streptococcus mutans* and lactobacilli) on susceptible tooth surfaces and the availability of fermentable carbohydrates.

At the beginning of the 20th century, extensive dental caries was common in the United States and in most developed countries (2). No effective measures existed for preventing this disease, and the most frequent treatment was tooth extraction. Failure to meet the minimum standard of having six opposing teeth was a leading cause of rejection from military service in both world wars (3,4). Pioneering oral epidemiologists developed an index to measure the prevalence of dental caries using the number of decayed, missing, or filled teeth (DMFT) or decayed, missing, or filled tooth surfaces (DMFS) (5) rather than merely presence of dental caries, in part because nearly all persons in most age groups in the United States had evidence of the disease. Application of the DMFT index in epidemiologic surveys throughout the United States in the 1930s and 1940s allowed quantitative distinctions in dental caries experience among communities—an innovation that proved critical in identifying a preventive agent and evaluating its effects.

*Fluoridation — Continued***History of Water Fluoridation**

Soon after establishing his dental practice in Colorado Springs, Colorado, in 1901, Dr. Frederick S. McKay noted an unusual permanent stain or "mottled enamel" (termed "Colorado brown stain" by area residents) on the teeth of many of his patients (6). After years of personal field investigations, McKay concluded that an agent in the public water supply probably was responsible for mottled enamel. McKay also observed that teeth affected by this condition seemed less susceptible to dental caries (7).

Dr. F. L. Robertson, a dentist in Bauxite, Arkansas, noted the presence of mottled enamel among children after a deep well was dug in 1909 to provide a local water supply. A hypothesis that something in the water was responsible for mottled enamel led local officials to abandon the well in 1927. In 1930, H. V. Churchill, a chemist with Aluminum Company of America, an aluminum manufacturing company that had bauxite mines in the town, used a newly available method of spectrographic analysis that identified high concentrations of fluoride (13.7 parts per million [ppm]) in the water of the abandoned well (8). Fluoride, the ion of the element fluorine, almost universally is found in soil and water but generally in very low concentrations (<1.0 ppm). On hearing of the new analytic method, McKay sent water samples to Churchill from areas where mottled enamel was endemic; these samples contained high levels of fluoride (2.0–12.0 ppm).

The identification of a possible etiologic agent for mottled enamel led to the establishment in 1931 of the Dental Hygiene Unit at the National Institute of Health headed by Dr. H. Trendley Dean. Dean's primary responsibility was to investigate the association between fluoride and mottled enamel (see box). Adopting the term "fluorosis" to replace "mottled enamel," Dean conducted extensive observational epidemiologic surveys and by 1942 had documented the prevalence of dental fluorosis for much of the United States (9). Dean developed the ordinaly scaled Fluorosis Index to classify this condition. Very mild fluorosis was characterized by small, opaque "paper white" areas affecting  $\leq 25\%$  of the tooth surface; in mild fluorosis, 26%–50% of the tooth surface was affected. In moderate dental fluorosis, all enamel surfaces were involved and susceptible to frequent brown staining. Severe fluorosis was characterized by pitting of the enamel, widespread brown stains, and a "corroded" appearance (9).

Dean compared the prevalence of fluorosis with data collected by others on dental caries prevalence among children in 26 states (as measured by DMFT) and noted a strong inverse relation (10). This cross-sectional relation was confirmed in a study of 21 cities in Colorado, Illinois, Indiana, and Ohio (11). Caries among children was lower in cities with more fluoride in their community water supplies; at concentrations >1.0 ppm, this association began to level off. At 1.0 ppm, the prevalence of dental fluorosis was low and mostly very mild.

The hypothesis that dental caries could be prevented by adjusting the fluoride level of community water supplies from negligible levels to 1.0–1.2 ppm was tested in a prospective field study conducted in four pairs of cities (intervention and control) starting in 1945: Grand Rapids and Muskegon, Michigan; Newburgh and Kingston, New York; Evanston and Oak Park, Illinois; and Brantford and Sarnia, Ontario, Canada. After conducting sequential cross-sectional surveys in these communities over 13–15 years, caries was reduced 50%–70% among children in the communities with fluoridated water (12). The prevalence of dental fluorosis in the intervention

*Fluoridation — Continued***H. Trendley Dean, D.D.S.**

In 1931, dental surgeon and epidemiologist H. Trendley Dean (August 25, 1893–May 13, 1962) set out to study the harm that too much fluoride could do; however, his work demonstrated the good that a little fluoride could do.

Henry Trendley Dean grew up in East St. Louis, and received his D.D.S. from the St. Louis University School of Dentistry in 1916. After 1 year in private practice, Dean joined the Army, serving in a number of military camps stateside before going to France. In 1919, Captain Dean returned to private practice, but 2 years later joined the Public Health Service as acting assistant dental surgeon. During the next 10 years he served in Marine hospitals around the country, studied for a year at Boston University, and developed a reputation as both a skilled dental surgeon and researcher. In 1931, Dean became the first dental scientist at the National Institute of Health, advancing to director of the dental research section in 1945. After World War II, he directed epidemiologic studies for the Army in Germany. When Congress established the National Institute of Dental Research (NIDR) in 1948, Dean was appointed its director, a position he held until retiring in 1953.



The National Institute of Health (NIH) had hired Dean in 1931 to conduct a major study of mottled enamel. The team that Dean assembled reflected an interdisciplinary approach. The study required accurate assays of fluoride in water, so he enlisted Dr. Elias Elvove, senior chemist at NIH, who developed a technique for measuring the presence of fluoride in water to an accuracy of 0.1 ppm. He also hired experts in animal dentistry, dental pathology, and water chemistry. As accurate data on the incidence of fluorosis emerged, the apparent correlation between mottled teeth and lower caries rates grew more compelling. As early as 1932, Dean observed that individuals in an area where mottled teeth was endemic demonstrated "a lower incidence of caries than individuals in some nearby non-endemic area." By 1938, determining the prophylactic properties of fluoride became the study's primary focus.

Dean's legacy comes almost entirely from his association with the introduction of fluoridation, yet fluoride constituted only a small part of his professional activities. He also studied the effects of radium poisoning on alveolar bone; developed a program to study the prevention and cure of Vincent's angina (trench mouth); and undertook various studies of the causes, prevention, and cure of dental caries. More important, he played a major role in shaping federal participation in basic dental science research at the NIDR, integrating investigations of dental health into mainstream medical research. As he stated in a national radio address in 1950: "We can't divorce the mouth from the rest of the body."

*Selected Bibliography*

- Harris RR. Dental science in a new age: a history of the National Institute of Dental Research. Rockville, Maryland: Montrose Press, 1989.
- National Institute of Dental and Craniofacial Research, National Institutes of Health. The fluoride story. Available at <http://www.nidcr.nih.gov/50/fluoride.htm>. Accessed October 19, 1999.
- Martin B. Scientific knowledge in controversy: the social dynamics of the fluoridation debate. Albany, New York: State University of New York Press, 1991.

*Fluoridation — Continued*

communities was comparable with what had been observed in cities where drinking water contained natural fluoride at 1.0 ppm. Epidemiologic investigations of patterns of water consumption and caries experience across different climates and geographic regions in the United States led in 1962 to the development of a recommended optimum range of fluoride concentration of 0.7–1.2 ppm, with the lower concentration recommended for warmer climates (where water consumption was higher) and the higher concentration for colder climates (13).

The effectiveness of community water fluoridation in preventing dental caries prompted rapid adoption of this public health measure in cities throughout the United States. As a result, dental caries declined precipitously during the second half of the 20th century. For example, the mean DMFT among persons aged 12 years in the United States declined 68%, from 4.0 in 1966–1970 (14) to 1.3 in 1988–1994 (CDC, unpublished data, 1999) (Figure 1). The American Dental Association, the American Medical Association, the World Health Organization, and other professional and scientific organizations quickly endorsed water fluoridation. Knowledge about the benefits of water fluoridation led to the development of other modalities for delivery of fluoride, such as toothpastes, gels, mouth rinses, tablets, and drops. Several countries in Europe and Latin America have added fluoride to table salt.

**Effectiveness of Water Fluoridation**

Early studies reported that caries reduction attributable to fluoridation ranged from 50% to 70%, but by the mid-1980s the mean DMFS scores in the permanent dentition of children who lived in communities with fluoridated water were only 18% lower than among those living in communities without fluoridated water (15). A review of studies on the effectiveness of water fluoridation conducted in the United States during 1979–1989 found that caries reduction was 8%–37% among adolescents (mean: 26.5%) (16).

Since the early days of community water fluoridation, the prevalence of dental caries has declined in both communities with and communities without fluoridated water in the United States. This trend has been attributed largely to the diffusion of fluoridated water to areas without fluoridated water through bottling and processing of foods and beverages in areas with fluoridated water and widespread use of fluoride toothpaste (17). Fluoride toothpaste is efficacious in preventing dental caries, but its effectiveness depends on frequency of use by persons or their caregivers. In contrast, water fluoridation reaches all residents of communities and generally is not dependent on individual behavior.

Although early studies focused mostly on children, water fluoridation also is effective in preventing dental caries among adults. Fluoridation reduces enamel caries in adults by 20%–40% (16) and prevents caries on the exposed root surfaces of teeth, a condition that particularly affects older adults.

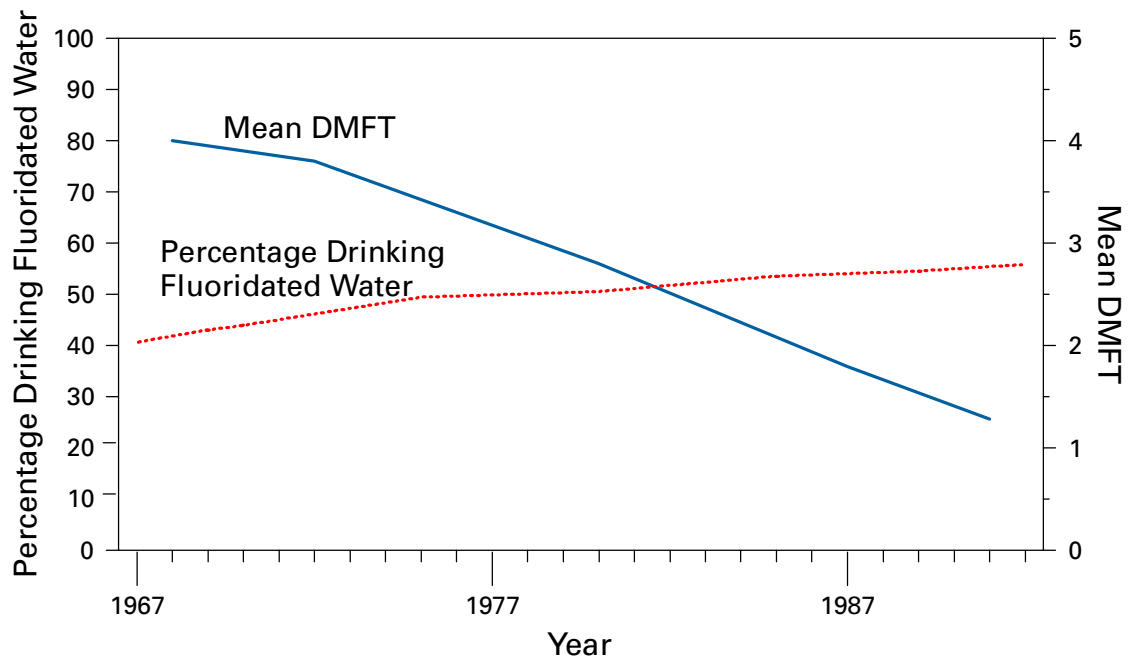
Water fluoridation is especially beneficial for communities of low socioeconomic status (18). These communities have a disproportionate burden of dental caries and have less access than higher income communities to dental-care services and other sources of fluoride. Water fluoridation may help reduce such dental health disparities.

**Biologic Mechanism**

Fluoride's caries-preventive properties initially were attributed to changes in enamel during tooth development because of the association between fluoride and

## Fluoridation — Continued

**FIGURE 1. Percentage of population residing in areas with fluoridated community water systems and mean number of decayed, missing (because of caries), or filled permanent teeth (DMFT) among children aged 12 years — United States, 1967–1992**



## Sources:

1. CDC. Fluoridation census 1992. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, National Center for Prevention Services, Division of Oral Health, 1993.
2. National Center for Health Statistics. Decayed, missing, and filled teeth among youth 12–17 years—United States. Rockville, Maryland: US Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, 1974. Vital and health statistics, vol 11, no. 144. DHEW publication no. (HRA)75-1626.
3. National Center for Health Statistics. Decayed, missing, and filled teeth among persons 1–74 years—United States. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, Office of Health Research, Statistics, and Technology, 1981. Vital and health statistics, vol 11, no. 223. DHHS publication no. (PHS)81-1673.
4. National Institute of Dental Research. Oral health of United States children: the National Survey of Dental Caries in U.S. School Children, 1986–1987. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1989. NIH publication no. 89-2247.
5. CDC, unpublished data, third National Health and Nutrition Examination Survey, 1988–1994.

cosmetic changes in enamel and a belief that fluoride incorporated into enamel during tooth development would result in a more acid-resistant mineral. However, laboratory and epidemiologic research suggests that fluoride prevents dental caries predominantly after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children (1). These mechanisms include 1) inhibition of demineralization, 2) enhancement of remineralization, and 3) inhibition of bacterial activity in dental plaque (1).

Enamel and dentin are composed of mineral crystals (primarily calcium and phosphate) embedded in an organic protein/lipid matrix. Dental mineral is dissolved readily by acid produced by cariogenic bacteria when they metabolize fermentable

*Fluoridation — Continued*

carbohydrates. Fluoride present in solution at low levels, which becomes concentrated in dental plaque, can substantially inhibit dissolution of tooth mineral by acid.

Fluoride enhances remineralization by adsorbing to the tooth surface and attracting calcium ions present in saliva. Fluoride also acts to bring the calcium and phosphate ions together and is included in the chemical reaction that takes place, producing a crystal surface that is much less soluble in acid than the original tooth mineral (1).

Fluoride from topical sources such as fluoridated drinking water is taken up by cariogenic bacteria when they produce acid. Once inside the cells, fluoride interferes with enzyme activity of the bacteria and the control of intracellular pH. This reduces bacterial acid production, which directly reduces the dissolution rate of tooth mineral (19).

**Population Served by Water Fluoridation**

By the end of 1992, 10,567 public water systems serving 135 million persons in 8573 U.S. communities had instituted water fluoridation (20). Approximately 70% of all U.S. cities with populations of >100,000 used fluoridated water. In addition, 3784 public water systems serving 10 million persons in 1924 communities had natural fluoride levels  $\geq 0.7$  ppm. In total, 144 million persons in the United States (56% of the population) were receiving fluoridated water in 1992, including 62% of those served by public water systems. However, approximately 42,000 public water systems and 153 U.S. cities with populations  $\geq 50,000$  have not instituted fluoridation.

**Cost Effectiveness and Cost Savings of Fluoridation**

Water fluoridation costs range from a mean of 31 cents per person per year in U.S. communities of >50,000 persons to a mean of \$2.12 per person in communities of <10,000 (1988 dollars) (21). Compared with other methods of community-based dental caries prevention, water fluoridation is the most cost effective for most areas of the United States in terms of cost per saved tooth surface (22).

Water fluoridation reduces direct health-care expenditures through primary prevention of dental caries and avoidance of restorative care. Per capita cost savings from 1 year of fluoridation may range from negligible amounts among very small communities with very low incidence of caries to \$53 among large communities with a high incidence of disease (CDC, unpublished data, 1999). One economic analysis estimated that prevention of dental caries, largely attributed to fluoridation and fluoride-containing products, saved \$39 billion (1990 dollars) in dental-care expenditures in the United States during 1979–1989 (23).

**Safety of Water Fluoridation**

Early investigations into the physiologic effects of fluoride in drinking water predated the first community field trials. Since 1950, opponents of water fluoridation have claimed it increased the risk for cancer, Down syndrome, heart disease, osteoporosis and bone fracture, acquired immunodeficiency syndrome, low intelligence, Alzheimer disease, allergic reactions, and other health conditions (24). The safety and effectiveness of water fluoridation have been re-evaluated frequently, and no credible evidence supports an association between fluoridation and any of these conditions (25).

*Fluoridation — Continued***21st Century Challenges**

Despite the substantial decline in the prevalence and severity of dental caries in the United States during the 20th century, this largely preventable disease is still common. National data indicate that 67% of persons aged 12–17 years (26) and 94% of persons aged  $\geq 18$  years (27) have experienced caries in their permanent teeth.

Among the most striking results of water fluoridation is the change in public attitudes and expectations regarding dental health. Tooth loss is no longer considered inevitable, and increasingly adults in the United States are retaining most of their teeth for a lifetime (12). For example, the percentage of persons aged 45–54 years who had lost all their permanent teeth decreased from 20.0% in 1960–1962 (28) to 9.1% in 1988–1994 (CDC, unpublished data, 1999). The oldest post-World War II “baby boomers” will reach age 60 years in the first decade of the 21st century, and more of that birth cohort will have a relatively intact dentition at that age than any generation in history. Thus, more teeth than ever will be at risk for caries among persons aged  $\geq 60$  years. In the next century, water fluoridation will continue to help prevent caries among these older persons in the United States.

Most persons in the United States support community water fluoridation (29). Although the proportion of the U.S. population drinking fluoridated water increased fairly quickly from 1945 into the 1970s, the rate of increase has been much lower in recent years. This slowing in the expansion of fluoridation is attributable to several factors: 1) the public, some scientists, and policymakers may perceive that dental caries is no longer a public health problem or that fluoridation is no longer necessary or effective; 2) adoption of water fluoridation can require political processes that make institution of this public health measure difficult; 3) opponents of water fluoridation often make unsubstantiated claims about adverse health effects of fluoridation in attempts to influence public opinion (24); and 4) many of the U.S. public water systems that are not fluoridated tend to serve small populations, which increases the per capita cost of fluoridation. These barriers present serious challenges to expanding fluoridation in the United States in the 21st century. To overcome the challenges facing this preventive measure, public health professionals at the national, state, and local level will need to enhance their promotion of fluoridation and commit the necessary resources for equipment, personnel, and training.

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

*References*

1. Featherstone JD. Prevention and reversal of dental caries: role of low level fluoride. *Community Dent Oral Epidemiol* 1999;27:31–40.
2. Burt BA. Influences for change in the dental health status of populations: an historical perspective. *J Public Health Dent* 1978;38:272–88.
3. Britten RH, Perrott GSJ. Summary of physical findings on men drafted in world war. *Pub Health Rep* 1941;56:41–62.
4. Klein H. Dental status and dental needs of young adult males, rejectable, or acceptable for military service, according to Selective Service dental requirements. *Pub Health Rep* 1941; 56:1369–87.
5. Klein H, Palmer CE, Knutson JW. Studies on dental caries. I. Dental status and dental needs of elementary school children. *Pub Health Rep* 1938;53:751–65.
6. McKay FS, Black GV. An investigation of mottled teeth: an endemic developmental imperfection of the enamel of the teeth, heretofore unknown in the literature of dentistry. *Dental Cosmos* 1916;58:477–84.

*Fluoridation — Continued*

7. McKay FS. Relation of mottled enamel to caries. *J Am Dent A* 1928;15:1429–37.
8. Churchill HV. Occurrence of fluorides in some waters of the United States. *J Ind Eng Chem* 1931;23:996–8.
9. Dean HT. The investigation of physiological effects by the epidemiological method. In: Moulton FR, ed. *Fluorine and dental health*. Washington, DC: American Association for the Advancement of Science 1942:23–31.
10. Dean HT. Endemic fluorosis and its relation to dental caries. *Public Health Rep* 1938;53:1443–52.
11. Dean HT. On the epidemiology of fluorine and dental caries. In: Gies WJ, ed. *Fluorine in dental public health*. New York, New York: New York Institute of Clinical Oral Pathology, 1945:19–30.
12. Burt BA, Eklund SA. *Dentistry, dental practice, and the community*. 5th ed. Philadelphia, Pennsylvania: WB Saunders, 1999.
13. Public Health Service. *Public Health Service drinking water standards—revised 1962*. Washington, DC: US Department of Health, Education, and Welfare, 1962. PHS publication no. 956.
14. National Center for Health Statistics. *Decayed, missing, and filled teeth among youth 12–17 years—United States*. Rockville, Maryland: US Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, 1974. *Vital and health statistics*, vol 11, no. 144. DHEW publication no. (HRA)75-1626.
15. Brunelle JA, Carlos JP. Recent trends in dental caries in US children and the effect of water fluoridation. *J Dent Res* 1990;69:723–7.
16. Newbrun E. Effectiveness of water fluoridation. *J Public Health Dent* 1989;49:279–89.
17. Horowitz HS. The effectiveness of community water fluoridation in the United States. *J Public Health Dent* 1996;56:253–8.
18. Riley JC, Lennon MA, Ellwood RP. The effect of water fluoridation and social inequalities on dental caries in 5-year-old children. *Int J Epidemiol* 1999;28:300–5.
19. Shellis RP, Duckworth RM. Studies on the cariostatic mechanisms of fluoride. *Int Dent J* 1994;44(3 suppl 1):263–73.
20. CDC. *Fluoridation census 1992*. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, National Center for Prevention Services, Division of Oral Health, 1993.
21. Ringelberg ML, Allen SJ, Brown LJ. Cost of fluoridation: 44 Florida communities. *J Public Health Dent* 1992;52:75–80.
22. Burt BA, ed. *Proceedings for the workshop: cost effectiveness of caries prevention in dental public health*. *J Public Health Dent* 1989;49(5, special issue):251–344.
23. Brown LJ, Beazoglou T, Heffley D. Estimated savings in U.S. dental expenditures, 1979–89. *Public Health Rep* 1994;109:195–203.
24. Hodge HC. Evaluation of some objections to water fluoridation. In: Newbrun E, ed. *Fluorides and dental caries*. 3rd ed. Springfield, Illinois: Charles C. Thomas, 1986:221–55.
25. National Research Council. *Health effects of ingested fluoride*. Washington, DC: National Academy Press, 1993.
26. Kaste LM, Selwitz RH, Oldakowski RJ, Brunelle JA, Winn DM, Brown LJ. Coronal caries in the primary and permanent dentition of children and adolescents 1–17 years of age: United States, 1988–1991. *J Dent Res* 1996;75:631–41.
27. Winn DM, Brunelle JA, Selwitz RH, et al. Coronal and root caries in the dentition of adults in the United States, 1988–1991. *J Dent Res* 1996;75:642–51.
28. National Center for Health Statistics. *Decayed, missing, and filled teeth in adults—United States, 1960–1962*. Rockville, Maryland: US Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, 1973. *Vital and health statistics* vol 11, no. 23. DHEW publication no. (HRA)74-1278.
29. American Dental Association Survey Center. *1998 consumers' opinions regarding community water fluoridation*. Chicago, Illinois: American Dental Association, 1998.



## Progress Toward Poliomyelitis Eradication — Nepal, 1996–1999

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000 (1). In 1996, following the lead established by other countries of the South-East Asia Region (SEAR)\*, Nepal accelerated polio eradication strategies by initiating National Immunization Days (NIDs)<sup>†</sup>. This report summarizes Nepal's progress toward polio eradication, focusing on the implementation of supplemental vaccination activities, the role of designated surveillance officers in the establishment of surveillance for polio eradication, and Nepal's plans for intensified supplemental vaccination to meet the 2000 eradication target (2).

### Routine and Supplemental Vaccination Programs

Nepal's national routine vaccination coverage with three doses of oral poliovirus vaccine (OPV3) was reported to be 83% in 1996, 81% in 1997, and 83% in 1998 (3). However, estimates from an independent cluster survey in 1998 indicated that national OPV3 coverage was 70% (4). Of Nepal's 75 districts, 60 were included in the survey; of these, the 30 districts in the densely populated Terai plains along Nepal's southern border with India had lower OPV3 coverage (60%) than the 30 surveyed districts in the northern hill/mountain belt (79%) (4).

Since 1996, NIDs have been conducted in Nepal on one day each in December and January during the low season for poliovirus transmission. NIDs during 1996–1997, 1997–1998, and 1998–1999 targeted children aged <5 years, and reached 97%, 96%, and 95% of the target population (3.9 million), respectively. Nepal's NIDs have been synchronized with NIDs in other countries of south and east Asia, including Bangladesh, Bhutan, China, India, Myanmar, Pakistan, and Thailand (5–8).

### Acute Flaccid Paralysis (AFP) Surveillance

AFP surveillance in Nepal was initiated in 1995 with passive reporting of AFP cases through the Early Warning Reporting System, a sentinel system for surveillance of six target diseases<sup>§</sup>. An expanded nationwide AFP surveillance system was established in July 1998 with the training and deployment of six designated Nepali regional surveillance officers (RSOs). These officers conduct active surveillance for AFP cases in government and private health-care facilities and provide training, technical assistance, and logistic support for polio eradication activities in their regions. Weekly and monthly reporting sites have been recruited since July 1998, and the reporting network continues to expand through inclusion of more peripheral health facilities.

AFP surveillance is evaluated by two key indicators: the sensitivity of reporting (target: one nonpolio AFP case per 100,000 population aged <15 years) and the completeness of stool specimen collection (target: two stool samples collected within 14 days of paralysis onset). The annualized nonpolio AFP rate increased from 0.2 in 1996 to 1.6 among children aged <15 years in 1999 (Table 1). The isolation rate of

\*SEAR comprises Bangladesh, Bhutan, Democratic Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, and Thailand.

<sup>†</sup>Mass vaccination campaigns over a short period (days to weeks) in which two doses of oral poliovirus vaccine are administered to all children in the target group (usually aged <5 years), regardless of previous vaccination history, with an interval of 4–6 weeks between doses.

<sup>§</sup>Surveillance is conducted for neonatal tetanus, measles, acute flaccid paralysis, kala azar, malaria, and Japanese encephalitis.

*Poliomyelitis Eradication — Continued***TABLE 1. Performance indicators for acute flaccid paralysis (AFP) surveillance — Nepal, 1996–1999**

| Indicator                        | Target | 1996 | 1997 | 1998 | 1999* |
|----------------------------------|--------|------|------|------|-------|
| Total AFP rate <sup>†</sup>      | —      | 0.18 | 0.40 | 0.74 | 2.41  |
| Nonpolio AFP rate <sup>§</sup>   | ≥1     | 0.2  | 0.26 | 0.41 | 1.60  |
| Two stool specimens <sup>¶</sup> | ≥80%   | 7%   | 33%  | 35%  | 79%   |
| 60-day follow-up                 | ≥80%   | 47%  | 75%  | 100% | 88%   |
| Total poliomyelitis cases**      | —      | 9    | 12   | 31   | 18    |
| Wild poliovirus                  | —      | 1    | 1    | 0    | 0     |

\* Annualized as of September 15, 1999.

<sup>†</sup>Total poliomyelitis cases + nonpolio AFP cases + cases pending classification per 100,000 children aged <15 years.

<sup>§</sup>Number of nonpolio AFP cases per 100,000 children aged <15 years.

<sup>¶</sup>Two stool samples collected within 14 days of paralysis onset.

\*\*Nepal uses the World Health Organization clinical classification system.

nonpolio enteroviruses from stool specimens, a measure of specimen condition and laboratory performance, was 33% in 1998 and 28% as of September 15, 1999.

### Confirmed Polio Cases

Nepal uses the World Health Organization (WHO) clinical system for classification<sup>¶</sup> of polio cases. During 1998, of 69 reported AFP cases, 31 (45%) were confirmed as polio and 38 (55%) as nonpolio AFP (Figure 1). None of the 31 polio cases had collection of adequate stool specimens, and the classification of polio was made on clinical grounds (22 with residual weakness, four lost to follow-up, and five case-patients died before follow-up at 60 days). During 1999, of 164 reported AFP cases, 18 (11%) were classified as polio, 109 (66%) as nonpolio AFP, and 37 (23%) are pending classification (Table 1). The proportion of adequate stool specimens collected from AFP cases improved from 35% in 1998 to 79% in 1999, allowing a larger proportion of AFP cases to be classified as nonpolio AFP based on more accurate virologic information.

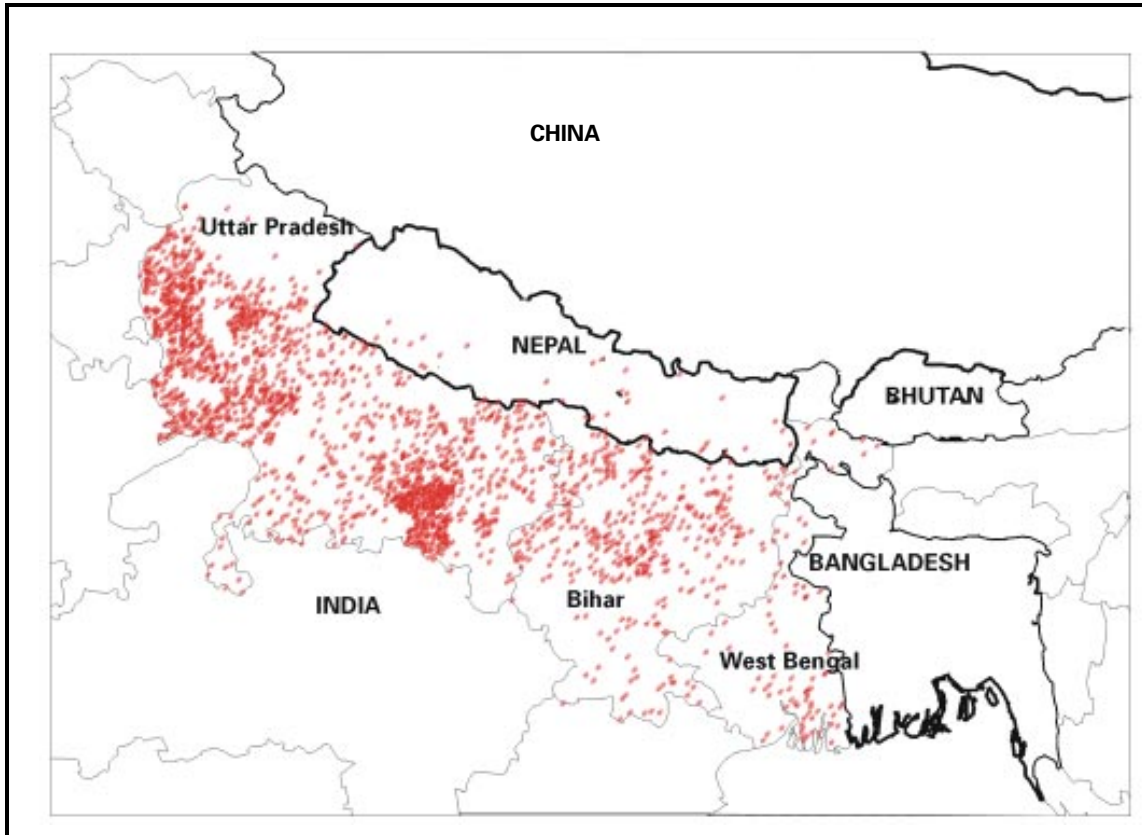
### Isolation of Poliovirus

Intratypic differentiation identified wild poliovirus type 1 from one case in 1996 and one case in 1997 (Table 1). These numbers probably underestimate actual wild poliovirus circulation in Nepal because few AFP cases were reported or investigated before July 1998.

*Reported by: Expanded Program on Immunization, Child Health Div, Ministry of Health, His Majesty's Government of Nepal; Expanded Program on Immunization, World Health Organization; United Nations Children's Fund National Office, Kathmandu. World Health Organization Regional Office of South East Asia, New Delhi, India. Global Program for Vaccines and Immunization, World Health Organization, Geneva, Switzerland. Respiratory and Enteric Viruses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Vaccine Preventable Disease Eradication Div, National Immunization Program; State Br, Div of Applied Public Health Training, Epidemiology Program Office; and an EIS Officer, CDC.*

**Editorial Note:** Nepal is a geographic buffer between India, the world's largest reservoir for poliovirus, and China, which has been polio-free since 1995. During 1998, 85% of the world's polioviruses were isolated from polio cases in India (WHO, unpublished data, 1999); Uttar Pradesh and Bihar, two large Indian states on Nepal's southern

<sup>¶</sup>A confirmed case of polio has either wild poliovirus isolation, residual paralysis at 60 days after onset of paralysis, is lost to follow-up, or has died.

*Poliomyelitis Eradication — Continued***FIGURE 1. Confirmed poliomyelitis cases — South-East Asia Region, 1998\***

\*Bangladesh, Bhutan, Democratic Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, and Thailand.

border, accounted for 54% of India's polioviruses isolated. Uttar Pradesh also was the site of three polio outbreaks during 1997–1999 (7). Residents of Nepal and India may cross borders without passport or visa, and persons from border communities with low vaccination coverage frequently migrate in both directions.

In Nepal, the most recent case of paralytic polio confirmed by wild poliovirus isolation in December 1997 occurred in an unvaccinated child residing in a border district. Another case that was clinically consistent with paralytic polio occurred in January 1999 in an Indian child who presented for care in southern Nepal, but from whom adequate stool specimens had not been collected. Because national surveillance for AFP has exceeded the international certification levels only since June 1999, confirmation of the absence of polioviruses is still pending.

OPV3 coverage of infants aged 12 months ranged from 39% to 80% in Nepal Terai districts spanning the Indian border (WHO, unpublished data, 1999). In addition to improved routine vaccination and NIDs, intensified supplemental and house-to-house vaccination targeting children aged <5 years is needed in areas at high risk for poliovirus transmission.

The polio eradication initiative is entering its most difficult and labor-intensive final phase. In a 1-year period, Nepal's RSOs developed a strong national AFP surveillance system (7). A factor contributing to rapid improvement of surveillance for polio

*Poliomyelitis Eradication — Continued*

eradication has been the participation of eight officers in the CDC Stop Transmission of Polio (STOP) initiative. STOP mobilizes additional trained personnel for 3-month polio eradication assignments in high-priority countries. STOP officers in Nepal worked with RSOs to strengthen AFP surveillance, plan NIDs and sub-NIDs, and mobilize other sectors in support of polio eradication.

Fewer than 440 days remain to reach the target for global polio eradication by the end of 2000. Substantial and rapid improvement in NIDs and AFP surveillance has brought Nepal closer to the goal of eradication\*\*. Priorities for polio eradication in Nepal in 1999 and 2000 include 1) execution of high-quality NIDs and supplemental vaccination campaigns targeting high risk areas and populations (five monthly rounds will be synchronized with India during November 1999–March 2000); 2) maintenance of sensitive AFP surveillance, especially in the densely populated districts bordering India; and 3) improving routine OPV3 coverage.

*References*

1. World Health Assembly. Global eradication of poliomyelitis by the year 2000. Geneva, Switzerland: World Health Organization, 1988; resolution no. 41.28.
2. Rai C, Amornkul PN, Bohara R, et al. Update on polio eradication: global and South-East Asia regional status and progress in Nepal. *Nepal Medical College Journal* 1999;1:57–61.
3. Department of Health Services, His Majesty's Government of Nepal, Ministry of Health. Annual report. Kathmandu, Nepal: Ministry of Health, 1997–1998.
4. United Nations Children's Fund, World Health Organization, Child Health Division, Department of Health Services, His Majesty's Government of Nepal, Ministry of Health. Routine immunization and NID coverage survey report 1998. Kathmandu, Nepal: Ministry of Health, 1999.
5. CDC. Progress toward global poliomyelitis eradication—1997–1998. *MMWR* 1999;48:416–21.
6. CDC. Progress toward poliomyelitis eradication—South East Asia Region, 1997–1998. *MMWR* 1999;48:230–9.
7. CDC. Progress toward poliomyelitis eradication—India, 1998. *MMWR* 1998;47:778–81.
8. CDC. Progress toward poliomyelitis eradication—Bangladesh, 1995–1997. *MMWR* 1998;47:31–5.

\*\* The polio eradication initiative in Nepal is supported by His Majesty's Government of Nepal, WHO, Rotary International, United Nations Children's Fund, U.S. Agency for International Development, the governments of Norway and Japan, and CDC.

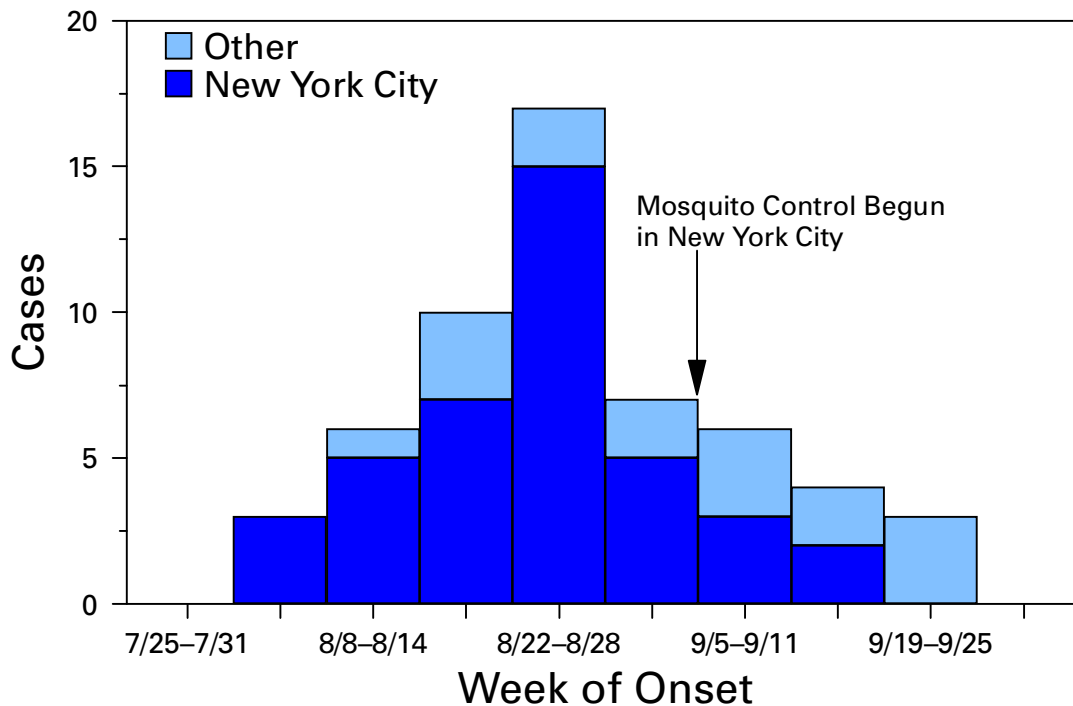
**Update: West Nile Virus Encephalitis — New York, 1999**

The West Nile virus (WNV) encephalitis outbreak continues to wane in the Northeast with the onset of cooler temperatures and continued vector-control operations. This report updates the progress of the ongoing investigation. Since the last published update (1), five additional domestic human cases and one international case have been identified. As of October 19, 56 (31 confirmed and 25 probable) cases of WNV infection have been identified, including seven deaths (Figure 1). The date of onset of the latest cases was September 22. The international case was a Canadian citizen who had visited the New York City (NYC) area in late August who had onset of fatal encephalitis on September 5. Active surveillance for human encephalitis cases in Connecticut and New Jersey has not detected any WNV cases.

Surveillance for WNV in mosquitoes and birds continues. As of October 19, 11 pools collected during September 12–October 4 of *Culex* spp. mosquitoes, positive for WNV, have been identified from NYC and Nassau and Suffolk counties. Pools of

West Nile Encephalitis — Continued

**FIGURE 1. Number of seropositive cases of West Nile virus, by week of onset — New York, 1999**



*Culex* and *Aedes vexans* mosquitoes collected during early to mid-September in Hudson County, New Jersey, tested positive for WNV by reverse transcriptase polymerase chain reaction (RT-PCR). Birds that tested positive for WNV now have been identified by RT-PCR on postmortem brain tissue from New York (NYC boroughs of Bronx, Brooklyn, Manhattan, Queens, and Staten Island; and Nassau, Orange, Rockland, Saratoga, Suffolk, and Westchester counties), New Jersey (Bergen, Burlington, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Union, and Warren counties), and Connecticut (Fairfield County). In addition, postmortem brain tissue from birds from Fairfield and New Haven counties, Connecticut, have been reported as positive in culture for WNV by the Connecticut Department of Health. Although most WNV-positive birds have been American crows, infections also have been confirmed in other native species, including the ring-billed gull, yellow-billed cuckoo, rock dove, sandhill crane, fish crow, blue jay, bald eagle, laughing gull, black-crowned night heron, mallard, American robin, red-tailed hawk, and broad-winged hawk.

Laboratory studies conducted at CDC have identified the etiologic agent responsible for the human arboviral encephalitis outbreak in the NYC area as WNV. Confirmation of the genetic identity as WNV has been performed independently by collaborators at the United States Army Medical Research Institute for Infectious Diseases. WNV-specific gene sequences have been amplified by RT-PCR performed on RNA extracted from autopsy specimens (six case-patients). Sequences of genome fragments of WNV isolated from dead birds and mosquitoes are identical to gene sequences from the human autopsy specimens. Antigenic mapping of these isolates

*West Nile Encephalitis — Continued*

has been performed using a panel of monoclonal antibodies (Mabs) developed by CDC or provided by collaborators at the University of Queensland, Australia. These envelope (E)-glycoprotein specific Mabs, capable of distinguishing WN, Kunjin, and St. Louis encephalitis viruses, confirmed the sequence identification of these isolates as WNV.

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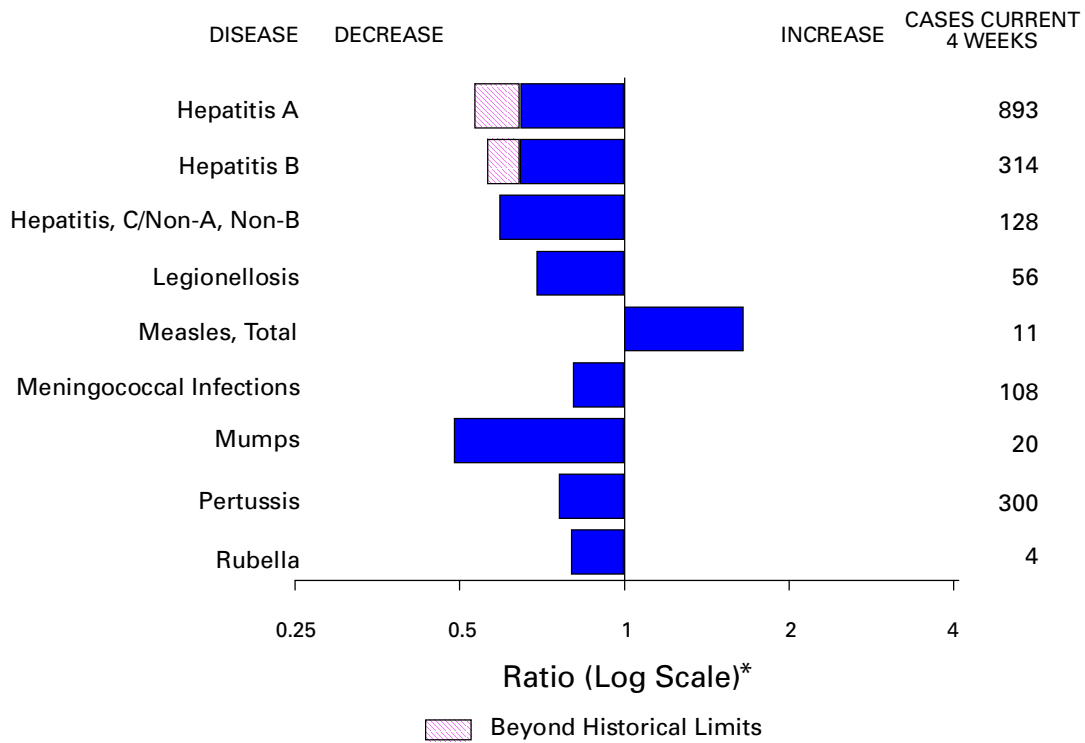
**Editorial Note:** The dates of onset of illness for laboratory-positive cases of WNV infection suggest that the outbreak peaked in late August. There have been no recognized cases of WNV infection with an onset date after September 22. WNV encephalitis has an incubation period of 5–15 days. The latest cases occurred outside NYC in Nassau and Westchester counties, which implemented mosquito-control measures later than NYC. Collectively, these data suggest that control measures, combined with cooler temperatures, have been effective in reducing the transmission cycle in nature and limiting further illnesses in humans. However, it is important to continue to recommend personal protective measures during outdoor activity at dusk and at night until the onset of cold weather in the affected areas (1).

The identification of WNV in birds from Orange and Saratoga counties, New York City, and Burlington County, New Jersey, may represent an extension northward and southward of the known area of natural transmission between birds and mosquitoes, but for this to be the case, either demonstration of WNV in vector mosquito populations or demonstration of neutralizing antibodies against WNV in resident birds is needed because these birds may have been infected elsewhere. The current known geographic distribution of infected dead birds is in counties surrounding the western half of Long Island Sound.

Serum samples collected from migrant and resident birds in several states will be analyzed for antibody to WNV. States included in this survey are New York, New Jersey, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. Collaborators in this survey include university ornithologists, state wildlife biologists, and state health departments. In addition, wildlife and health officials in all mid-Atlantic and southeastern states have been alerted to investigate reports of unusual clusters of dead birds.

*(Continued on page 955)*

**FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending October 16, 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 October 16, 1999 (41st Week)**

|   | Cum. 1999 |   | Cum. 1999 |
|---|-----------|---|-----------|
| Anthrax                                     | -         | HIV infection, pediatric* <sup>5</sup>  | 109       |
| Brucellosis*                                | 36        | Plague                                  | 5         |
| Cholera                                     | 5         | Poliomyelitis, paralytic                | -         |
| Congenital rubella syndrome                 | 4         | Psittacosis*                            | 16        |
| Cyclosporiasis*                             | 48        | Rabies, human                           | -         |
| Diphtheria                                  | 4         | Rocky Mountain spotted fever (RMSF)     | 432       |
| Encephalitis: California*                   | 43        | Streptococcal disease, invasive Group A | 1,665     |
| eastern equine*                             | 5         | Streptococcal toxic-shock syndrome*     | 30        |
| St. Louis*                                  | 3         | Syphilis, congenital <sup>¶</sup>       | 146       |
| western equine*                             | -         | Tetanus                                 | 30        |
| Ehrlichiosis                                | 118       | Toxic-shock syndrome                    | 94        |
| human granulocytic (HGE)*                   | 34        | Trichinosis                             | 8         |
| human monocytic (HME)*                      | 78        | Typhoid fever                           | 251       |
| Hansen Disease*                             | 16        | Yellow fever                            | -         |
| Hantavirus pulmonary syndrome* <sup>†</sup> | 77        |   |           |
| Hemolytic uremic syndrome, post-diarrheal*  |           |   |           |

-:no reported cases

\*Not notifiable in all states.

<sup>†</sup> Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).

<sup>5</sup> 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 September 26, 1999.

<sup>¶</sup> Updated from reports to the Division of STD Prevention, NCHSTP.

**TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending October 16, 1999, and October 17, 1998 (41st Week)**

| Reporting Area | AIDS       |           | Chlamydia |           | Cryptosporidiosis |           | <i>Escherichia coli</i> O157:H7* |           |           |           |
|----------------|------------|-----------|-----------|-----------|-------------------|-----------|----------------------------------|-----------|-----------|-----------|
|                | Cum. 1999† | Cum. 1998 | Cum. 1999 | Cum. 1998 | Cum. 1999         | Cum. 1998 | NETSS                            |           | PHLIS     |           |
|                |            |           |           |           |                   |           | Cum. 1999                        | Cum. 1998 | Cum. 1999 | Cum. 1998 |
| UNITED STATES  | 34,088     | 35,254    | 447,781   | 463,162   | 1,733             | 3,137     | 2,573                            | 2,381     | 1,672     | 1,874     |
| NEW ENGLAND    | 1,698      | 1,354     | 15,816    | 16,053    | 119               | 135       | 270                              | 282       | 232       | 238       |
| Maine          | 54         | 24        | 738       | 783       | 23                | 28        | 34                               | 33        | -         | -         |
| N.H.           | 36         | 25        | 750       | 785       | 17                | 14        | 28                               | 42        | 29        | 42        |
| Vt.            | 13         | 17        | 376       | 328       | 32                | 22        | 28                               | 18        | 15        | 17        |
| Mass.          | 1,116      | 684       | 7,248     | 6,590     | 44                | 64        | 155                              | 130       | 115       | 135       |
| R.I.           | 77         | 98        | 1,814     | 1,807     | 3                 | 7         | 25                               | 11        | 6         | 1         |
| Conn.          | 402        | 506       | 4,890     | 5,760     | -                 | -         | U                                | 48        | 67        | 43        |
| MID. ATLANTIC  | 8,684      | 9,591     | 50,205    | 48,082    | 264               | 476       | 214                              | 259       | 60        | 81        |
| Upstate N.Y.   | 952        | 1,103     | N         | N         | 123               | 285       | 165                              | 186       | -         | -         |
| N.Y. City      | 4,588      | 5,419     | 21,963    | 20,800    | 109               | 170       | 7                                | 12        | 15        | 12        |
| N.J.           | 1,619      | 1,753     | 8,087     | 9,266     | 22                | 21        | 42                               | 61        | 32        | 48        |
| Pa.            | 1,525      | 1,316     | 20,155    | 18,016    | 10                | N         | N                                | N         | 13        | 21        |
| E.N. CENTRAL   | 2,280      | 2,565     | 63,857    | 78,115    | 392               | 623       | 538                              | 382       | 396       | 315       |
| Ohio           | 345        | 549       | 18,521    | 20,951    | 47                | 60        | 185                              | 100       | 157       | 59        |
| Ind.           | 258        | 412       | 8,038     | 8,676     | 33                | 50        | 74                               | 81        | 46        | 46        |
| Ill.           | 1,108      | 986       | 21,533    | 21,146    | 17                | 74        | 178                              | 101       | 81        | 73        |
| Mich.          | 456        | 466       | 15,765    | 16,435    | 42                | 34        | 101                              | 100       | 68        | 62        |
| Wis.           | 113        | 152       | U         | 10,907    | 253               | 405       | N                                | N         | 44        | 75        |
| W.N. CENTRAL   | 770        | 661       | 26,244    | 27,435    | 179               | 243       | 508                              | 402       | 303       | 361       |
| Minn.          | 138        | 135       | 5,396     | 5,539     | 67                | 79        | 200                              | 175       | 152       | 193       |
| Iowa           | 69         | 58        | 3,154     | 3,492     | 51                | 61        | 102                              | 81        | 57        | 51        |
| Mo.            | 370        | 310       | 9,298     | 9,986     | 24                | 20        | 41                               | 41        | 55        | 57        |
| N. Dak.        | 6          | 4         | 325       | 804       | 16                | 27        | 16                               | 10        | 14        | 15        |
| S. Dak.        | 14         | 13        | 1,244     | 1,205     | 6                 | 19        | 38                               | 25        | 13        | 32        |
| Nebr.          | 60         | 60        | 2,601     | 2,137     | 14                | 31        | 90                               | 42        | -         | -         |
| Kans.          | 113        | 81        | 4,226     | 4,272     | 1                 | 6         | 21                               | 28        | 12        | 13        |
| S. ATLANTIC    | 9,423      | 9,157     | 94,346    | 88,965    | 316               | 280       | 271                              | 194       | 139       | 151       |
| Del.           | 129        | 112       | 1,968     | 2,020     | -                 | 3         | 6                                | -         | 3         | 2         |
| Md.            | 1,113      | 1,300     | 7,963     | 5,835     | 14                | 18        | 26                               | 35        | 2         | 14        |
| D.C.           | 412        | 690       | N         | N         | 8                 | 21        | -                                | 1         | U         | U         |
| Va.            | 608        | 687       | 10,964    | 11,053    | 21                | 20        | 63                               | N         | 48        | 50        |
| W. Va.         | 53         | 68        | 1,204     | 1,891     | 3                 | 1         | 10                               | 8         | 6         | 8         |
| N.C.           | 629        | 637       | 17,832    | 17,443    | 19                | N         | 59                               | 46        | 46        | 45        |
| S.C.           | 797        | 598       | 9,850     | 13,656    | -                 | -         | 19                               | 11        | 14        | 8         |
| Ga.            | 1,382      | 979       | 21,374    | 18,476    | 115               | 90        | 28                               | 62        | -         | -         |
| Fla.           | 4,300      | 4,086     | 23,191    | 18,591    | 136               | 127       | 60                               | 31        | 20        | 24        |
| E.S. CENTRAL   | 1,536      | 1,440     | 36,177    | 32,073    | 24                | 22        | 103                              | 103       | 53        | 59        |
| Ky.            | 214        | 221       | 5,917     | 4,991     | 6                 | 10        | 34                               | 32        | -         | -         |
| Tenn.          | 588        | 519       | 11,088    | 10,698    | 6                 | 7         | 43                               | 45        | 33        | 38        |
| Ala.           | 405        | 395       | 10,137    | 7,901     | 10                | N         | 21                               | 21        | 16        | 18        |
| Miss.          | 329        | 305       | 9,035     | 8,483     | 2                 | 5         | 5                                | 5         | 4         | 3         |
| W.S. CENTRAL   | 3,524      | 4,187     | 66,528    | 70,392    | 66                | 869       | 89                               | 81        | 94        | 90        |
| Ark.           | 132        | 159       | 4,690     | 3,079     | 1                 | 6         | 12                               | 10        | 8         | 10        |
| La.            | 663        | 705       | 10,879    | 11,554    | 22                | 14        | 9                                | 4         | 13        | 6         |
| Okla.          | 101        | 238       | 6,121     | 7,794     | 9                 | N         | 20                               | 13        | 17        | 7         |
| Tex.           | 2,628      | 3,085     | 44,838    | 47,965    | 34                | 849       | 48                               | 54        | 56        | 67        |
| MOUNTAIN       | 1,343      | 1,230     | 25,008    | 25,778    | 84                | 118       | 247                              | 309       | 134       | 216       |
| Mont.          | 8          | 23        | 1,195     | 1,041     | 10                | 10        | 20                               | 15        | -         | 5         |
| Idaho          | 19         | 19        | 1,355     | 1,577     | 7                 | 17        | 39                               | 36        | 8         | 23        |
| Wyo.           | 10         | 1         | 609       | 536       | 1                 | 2         | 14                               | 52        | 5         | 55        |
| Colo.          | 235        | 230       | 4,845     | 6,381     | 11                | 16        | 90                               | 68        | 75        | 53        |
| N. Mex.        | 74         | 178       | 2,943     | 2,793     | 38                | 46        | 10                               | 17        | 5         | 18        |
| Ariz.          | 697        | 501       | 9,889     | 9,183     | 10                | 18        | 28                               | 41        | 19        | 26        |
| Utah           | 116        | 101       | 1,714     | 1,660     | N                 | N         | 32                               | 65        | 20        | 21        |
| Nev.           | 184        | 177       | 2,458     | 2,607     | 7                 | 9         | 14                               | 15        | 2         | 15        |
| PACIFIC        | 4,830      | 5,069     | 69,600    | 76,269    | 289               | 371       | 333                              | 369       | 261       | 363       |
| Wash.          | 285        | 331       | 9,353     | 8,731     | N                 | N         | 131                              | 80        | 119       | 108       |
| Oreg.          | 151        | 138       | 4,959     | 4,315     | 86                | 63        | 65                               | 95        | 61        | 91        |
| Calif.         | 4,319      | 4,452     | 51,549    | 59,728    | 203               | 305       | 128                              | 190       | 71        | 150       |
| Alaska         | 13         | 17        | 1,497     | 1,489     | -                 | -         | 1                                | 4         | 1         | -         |
| Hawaii         | 62         | 131       | 2,242     | 2,006     | -                 | 3         | 8                                | -         | 9         | 14        |
| Guam           | 5          | -         | 302       | 327       | -                 | -         | N                                | N         | U         | U         |
| P.R.           | 1,013      | 1,244     | U         | U         | -                 | N         | 5                                | 5         | U         | U         |
| V.I.           | 25         | 24        | 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 September 26, 1999.



**TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending October 16, 1999, and October 17, 1998 (41st 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  | 245,721   | 275,632   | 2,615             | 2,621     | 671           | 1,035     | 8,669        | 13,157    |
| NEW ENGLAND    | 4,831     | 4,768     | 59                | 53        | 59            | 70        | 3,063        | 4,118     |
| Maine          | 42        | 54        | 2                 | -         | 3             | 1         | 41           | 70        |
| N.H.           | 88        | 74        | -                 | -         | 6             | 5         | 16           | 36        |
| Vt.            | 37        | 32        | 6                 | 4         | 13            | 5         | 18           | 11        |
| Mass.          | 1,999     | 1,737     | 48                | 46        | 19            | 30        | 946          | 653       |
| R.I.           | 469       | 298       | 3                 | 3         | 7             | 19        | 401          | 444       |
| Conn.          | 2,196     | 2,573     | -                 | -         | 11            | 10        | 1,641        | 2,904     |
| MID. ATLANTIC  | 29,586    | 29,711    | 107               | 173       | 129           | 256       | 4,160        | 7,178     |
| Upstate N.Y.   | 5,360     | 5,523     | 72                | 86        | 49            | 78        | 3,027        | 3,392     |
| N.Y. City      | 9,463     | 9,391     | -                 | -         | 9             | 33        | 29           | 197       |
| N.J.           | 5,042     | 6,250     | -                 | U         | 13            | 15        | 390          | 1,538     |
| Pa.            | 9,721     | 8,547     | 35                | 87        | 58            | 130       | 714          | 2,051     |
| E.N. CENTRAL   | 42,601    | 53,959    | 1,319             | 565       | 187           | 344       | 101          | 675       |
| Ohio           | 11,132    | 13,623    | 3                 | 7         | 61            | 108       | 66           | 35        |
| Ind.           | 4,425     | 5,106     | 1                 | 5         | 31            | 59        | 19           | 33        |
| Ill.           | 16,054    | 17,623    | 38                | 37        | 10            | 47        | 10           | 14        |
| Mich.          | 10,990    | 12,629    | 686               | 385       | 56            | 68        | 1            | 12        |
| Wis.           | U         | 4,978     | 591               | 131       | 29            | 62        | 5            | 581       |
| W.N. CENTRAL   | 10,720    | 13,408    | 157               | 35        | 38            | 58        | 178          | 187       |
| Minn.          | 2,072     | 2,118     | 7                 | 9         | 6             | 6         | 115          | 142       |
| Iowa           | 834       | 1,185     | -                 | 8         | 11            | 9         | 19           | 23        |
| Mo.            | 4,686     | 6,975     | 139               | 12        | 14            | 15        | 21           | 11        |
| N. Dak.        | 31        | 66        | -                 | -         | 1             | -         | 1            | -         |
| S. Dak.        | 143       | 185       | -                 | -         | 2             | 3         | -            | -         |
| Nebr.          | 1,128     | 876       | 5                 | 4         | 4             | 18        | 10           | 3         |
| Kans.          | 1,826     | 2,003     | 6                 | 2         | -             | 7         | 12           | 8         |
| S. ATLANTIC    | 70,363    | 74,153    | 176               | 89        | 107           | 114       | 908          | 749       |
| Del.           | 1,229     | 1,173     | 1                 | -         | 10            | 12        | 25           | 57        |
| Md.            | 6,375     | 7,143     | 37                | 12        | 24            | 28        | 652          | 544       |
| D.C.           | 2,969     | 3,450     | 1                 | -         | 3             | 6         | 3            | 4         |
| Va.            | 7,160     | 7,388     | 10                | 11        | 26            | 16        | 106          | 55        |
| W. Va.         | 363       | 691       | 17                | 6         | N             | N         | 15           | 11        |
| N.C.           | 15,841    | 15,185    | 33                | 19        | 13            | 11        | 63           | 48        |
| S.C.           | 5,679     | 8,680     | 22                | 5         | 7             | 10        | 5            | 4         |
| Ga.            | 14,359    | 15,789    | 1                 | 9         | 1             | 8         | -            | 5         |
| Fla.           | 16,388    | 14,654    | 54                | 27        | 23            | 23        | 39           | 21        |
| E.S. CENTRAL   | 29,057    | 30,892    | 213               | 243       | 35            | 55        | 69           | 93        |
| Ky.            | 2,686     | 2,910     | 15                | 19        | 18            | 26        | 8            | 23        |
| Tenn.          | 8,973     | 9,367     | 80                | 145       | 14            | 17        | 30           | 41        |
| Ala.           | 9,125     | 10,116    | 2                 | 4         | 3             | 5         | 18           | 16        |
| Miss.          | 8,273     | 8,499     | 116               | 75        | -             | 7         | 13           | 13        |
| W.S. CENTRAL   | 37,355    | 43,189    | 186               | 430       | 6             | 27        | 28           | 19        |
| Ark.           | 2,452     | 3,191     | 11                | 16        | -             | 1         | 4            | 6         |
| La.            | 8,653     | 9,823     | 102               | 73        | 2             | 2         | -            | 4         |
| Okla.          | 2,988     | 4,272     | 14                | 12        | 3             | 12        | 4            | 2         |
| Tex.           | 23,262    | 25,903    | 59                | 329       | 1             | 12        | 20           | 7         |
| MOUNTAIN       | 7,321     | 7,202     | 122               | 325       | 41            | 62        | 16           | 13        |
| Mont.          | 39        | 32        | 5                 | 7         | -             | 2         | -            | -         |
| Idaho          | 68        | 140       | 6                 | 86        | 2             | 2         | 5            | 4         |
| Wyo.           | 24        | 27        | 37                | 79        | -             | 1         | 3            | 1         |
| Colo.          | 1,846     | 1,655     | 20                | 25        | 11            | 15        | -            | -         |
| N. Mex.        | 597       | 705       | 7                 | 82        | 1             | 2         | 1            | 4         |
| Ariz.          | 3,559     | 3,309     | 33                | 8         | 6             | 14        | -            | -         |
| Utah           | 170       | 182       | 6                 | 19        | 15            | 20        | 5            | -         |
| Nev.           | 1,018     | 1,152     | 8                 | 19        | 6             | 6         | 2            | 4         |
| PACIFIC        | 13,887    | 18,350    | 276               | 708       | 69            | 49        | 146          | 125       |
| Wash.          | 1,623     | 1,534     | 13                | 20        | 11            | 9         | 7            | 7         |
| Oreg.          | 711       | 633       | 17                | 16        | N             | N         | 11           | 18        |
| Calif.         | 10,987    | 15,515    | 246               | 618       | 57            | 38        | 128          | 99        |
| Alaska         | 242       | 253       | -                 | -         | 1             | 1         | -            | 1         |
| Hawaii         | 324       | 415       | -                 | 54        | -             | 1         | N            | N         |
| Guam           | 39        | 54        | 1                 | 1         | -             | 2         | -            | 1         |
| P.R.           | 247       | 300       | -                 | -         | -             | -         | 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 October 16, 1999, and October 17, 1998 (41st Week)**

| Reporting Area | Malaria   |           | Rabies, Animal |           | Salmonellosis* |           |           |           |
|----------------|-----------|-----------|----------------|-----------|----------------|-----------|-----------|-----------|
|                | Cum. 1999 | Cum. 1998 | Cum. 1999      | Cum. 1998 | NETSS          |           | PHLIS     |           |
|                |           |           |                |           | Cum. 1999      | Cum. 1998 | Cum. 1999 | Cum. 1998 |
| UNITED STATES  | 991       | 1,169     | 4,696          | 6,035     | 28,297         | 32,937    | 22,311    | 27,913    |
| NEW ENGLAND    | 50        | 48        | 714            | 1,207     | 1,361          | 1,987     | 1,392     | 1,909     |
| Maine          | 3         | 4         | 133            | 199       | 116            | 144       | 83        | 53        |
| N.H.           | 2         | 5         | 48             | 71        | 113            | 154       | 120       | 196       |
| Vt.            | 4         | 1         | 84             | 55        | 78             | 111       | 73        | 86        |
| Mass.          | 15        | 16        | 170            | 422       | 949            | 1,114     | 718       | 1,139     |
| R.I.           | 4         | 4         | 76             | 78        | 105            | 107       | 52        | 34        |
| Conn.          | 22        | 18        | 203            | 382       | U              | 357       | 346       | 401       |
| MID. ATLANTIC  | 220       | 353       | 865            | 1,304     | 3,137          | 5,334     | 2,955     | 4,944     |
| Upstate N.Y.   | 56        | 78        | 642            | 914       | 1,043          | 1,290     | 860       | 1,165     |
| N.Y. City      | 99        | 200       | U              | U         | 1,060          | 1,609     | 853       | 1,291     |
| N.J.           | 44        | 49        | 150            | 173       | 508            | 1,146     | 535       | 1,141     |
| Pa.            | 21        | 26        | 73             | 217       | 526            | 1,289     | 707       | 1,347     |
| E.N. CENTRAL   | 94        | 124       | 135            | 114       | 4,197          | 5,184     | 2,812     | 3,951     |
| Ohio           | 18        | 14        | 32             | 52        | 1,027          | 1,251     | 867       | 960       |
| Ind.           | 18        | 10        | 12             | 9         | 409            | 551       | 329       | 448       |
| Ill.           | 20        | 50        | 9              | N         | 1,328          | 1,596     | 399       | 1,246     |
| Mich.          | 33        | 41        | 79             | 34        | 801            | 945       | 782       | 860       |
| Wis.           | 5         | 9         | 3              | 19        | 632            | 841       | 435       | 437       |
| W.N. CENTRAL   | 62        | 75        | 582            | 608       | 1,822          | 1,865     | 1,792     | 1,940     |
| Minn.          | 33        | 42        | 88             | 101       | 525            | 448       | 588       | 532       |
| Iowa           | 13        | 7         | 137            | 131       | 224            | 317       | 158       | 254       |
| Mo.            | 12        | 14        | 13             | 34        | 563            | 512       | 751       | 710       |
| N. Dak.        | -         | 2         | 125            | 121       | 41             | 48        | 47        | 67        |
| S. Dak.        | -         | -         | 129            | 139       | 75             | 96        | 58        | 102       |
| Nebr.          | -         | 1         | 3              | 7         | 175            | 153       | -         | 35        |
| Kans.          | 4         | 9         | 87             | 75        | 219            | 291       | 190       | 240       |
| S. ATLANTIC    | 283       | 244       | 1,727          | 1,983     | 6,840          | 6,562     | 4,229     | 4,971     |
| Del.           | 1         | 3         | 34             | 39        | 107            | 66        | 137       | 105       |
| Md.            | 78        | 73        | 331            | 388       | 717            | 747       | 765       | 730       |
| D.C.           | 16        | 16        | -              | -         | 62             | 64        | U         | U         |
| Va.            | 57        | 48        | 450            | 474       | 1,063          | 880       | 789       | 739       |
| W. Va.         | 2         | 2         | 93             | 64        | 136            | 121       | 126       | 124       |
| N.C.           | 26        | 23        | 362            | 491       | 1,022          | 948       | 1,051     | 1,148     |
| S.C.           | 15        | 6         | 123            | 121       | 533            | 492       | 349       | 444       |
| Ga.            | 21        | 32        | 178            | 247       | 1,120          | 1,286     | 651       | 1,229     |
| Fla.           | 67        | 41        | 156            | 159       | 2,080          | 1,958     | 361       | 452       |
| E.S. CENTRAL   | 21        | 25        | 221            | 234       | 1,470          | 1,816     | 880       | 1,322     |
| Ky.            | 7         | 5         | 33             | 27        | 323            | 306       | -         | 124       |
| Tenn.          | 7         | 13        | 79             | 122       | 324            | 471       | 429       | 582       |
| Ala.           | 6         | 5         | 108            | 83        | 473            | 562       | 374       | 492       |
| Miss.          | 1         | 2         | 1              | 2         | 350            | 477       | 77        | 124       |
| W.S. CENTRAL   | 15        | 32        | 86             | 26        | 2,638          | 3,528     | 2,723     | 2,579     |
| Ark.           | 2         | 1         | 14             | 26        | 514            | 464       | 120       | 300       |
| La.            | 10        | 13        | -              | -         | 334            | 472       | 472       | 635       |
| Okla.          | 2         | 3         | 72             | N         | 355            | 378       | 271       | 180       |
| Tex.           | 1         | 15        | -              | -         | 1,435          | 2,214     | 1,860     | 1,464     |
| MOUNTAIN       | 39        | 55        | 169            | 223       | 2,440          | 2,053     | 1,698     | 1,738     |
| Mont.          | 4         | 1         | 52             | 47        | 50             | 70        | 1         | 42        |
| Idaho          | 3         | 7         | -              | N         | 89             | 95        | 57        | 77        |
| Wyo.           | 1         | -         | 41             | 55        | 52             | 57        | 22        | 50        |
| Colo.          | 14        | 16        | 1              | 38        | 602            | 461       | 615       | 438       |
| N. Mex.        | 2         | 12        | 8              | 6         | 286            | 251       | 217       | 222       |
| Ariz.          | 9         | 8         | 55             | 45        | 790            | 634       | 650       | 599       |
| Utah           | 3         | 1         | 7              | 26        | 419            | 293       | 83        | 122       |
| Nev.           | 3         | 10        | 5              | 6         | 152            | 192       | 53        | 188       |
| PACIFIC        | 207       | 213       | 197            | 336       | 4,392          | 4,608     | 3,830     | 4,559     |
| Wash.          | 22        | 17        | -              | -         | 515            | 397       | 670       | 541       |
| Oreg.          | 19        | 14        | 1              | 7         | 367            | 252       | 419       | 276       |
| Calif.         | 158       | 176       | 189            | 306       | 3,181          | 3,694     | 2,486     | 3,469     |
| Alaska         | 1         | 2         | 7              | 23        | 47             | 50        | 15        | 31        |
| Hawaii         | 7         | 4         | -              | -         | 282            | 215       | 240       | 242       |
| Guam           | -         | 2         | -              | -         | 24             | 29        | U         | U         |
| P.R.           | -         | -         | 57             | 42        | 255            | 585       | 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 October 16, 1999, and October 17, 1998 (41st Week)**

| Reporting Area | Shigellosis* |              |              |              | Syphilis<br>(Primary & Secondary) |              | Tuberculosis  |               |
|----------------|--------------|--------------|--------------|--------------|-----------------------------------|--------------|---------------|---------------|
|                | NETSS        |              | PHLIS        |              | Cum.<br>1999                      | Cum.<br>1998 | Cum.<br>1999† | Cum.<br>1998† |
|                | Cum.<br>1999 | Cum.<br>1998 | Cum.<br>1999 | Cum.<br>1998 |                                   |              |               |               |
| UNITED STATES  | 11,814       | 16,457       | 5,640        | 9,382        | 5,000                             | 5,645        | 11,071        | 13,022        |
| NEW ENGLAND    | 564          | 361          | 387          | 321          | 44                                | 63           | 315           | 343           |
| Maine          | 5            | 12           | -            | -            | -                                 | 1            | 13            | 11            |
| N.H.           | 16           | 15           | 14           | 18           | -                                 | 2            | 10            | -             |
| Vt.            | 6            | 6            | 4            | -            | 3                                 | 4            | 1             | 4             |
| Mass.          | 515          | 240          | 315          | 231          | 26                                | 35           | 190           | 196           |
| R.I.           | 22           | 30           | 9            | 13           | 2                                 | 1            | 33            | 41            |
| Conn.          | U            | 58           | 45           | 59           | 13                                | 20           | 68            | 91            |
| MID. ATLANTIC  | 693          | 1,995        | 370          | 1,502        | 204                               | 250          | 2,020         | 2,256         |
| Upstate N.Y.   | 232          | 468          | 45           | 164          | 24                                | 33           | 248           | 285           |
| N.Y. City      | 220          | 610          | 82           | 542          | 67                                | 57           | 1,091         | 1,114         |
| N.J.           | 170          | 596          | 121          | 560          | 48                                | 79           | 408           | 486           |
| Pa.            | 71           | 321          | 122          | 236          | 65                                | 81           | 273           | 371           |
| E.N. CENTRAL   | 2,155        | 2,306        | 1,083        | 1,213        | 930                               | 816          | 1,038         | 1,291         |
| Ohio           | 358          | 417          | 114          | 106          | 74                                | 119          | 198           | 189           |
| Ind.           | 235          | 140          | 76           | 35           | 356                               | 161          | 72            | 129           |
| Ill.           | 832          | 1,262        | 592          | 1,014        | 315                               | 342          | 462           | 604           |
| Mich.          | 351          | 226          | 233          | 4            | 185                               | 141          | 229           | 287           |
| Wis.           | 379          | 261          | 68           | 54           | U                                 | 53           | 77            | 82            |
| W.N. CENTRAL   | 927          | 859          | 575          | 503          | 102                               | 108          | 345           | 365           |
| Minn.          | 200          | 263          | 198          | 292          | 9                                 | 7            | 122           | 116           |
| Iowa           | 46           | 58           | 23           | 40           | 9                                 | 1            | 37            | 28            |
| Mo.            | 569          | 107          | 313          | 82           | 67                                | 82           | 134           | 142           |
| N. Dak.        | 2            | 7            | 2            | 3            | -                                 | -            | 6             | 8             |
| S. Dak.        | 11           | 31           | 5            | 21           | -                                 | 1            | 12            | 16            |
| Nebr.          | 62           | 335          | -            | 19           | 7                                 | 4            | 15            | 16            |
| Kans.          | 37           | 58           | 34           | 46           | 10                                | 13           | 19            | 39            |
| S. ATLANTIC    | 1,957        | 3,414        | 376          | 1,060        | 1,590                             | 2,059        | 2,326         | 2,379         |
| Del.           | 12           | 27           | 8            | 25           | 6                                 | 19           | 12            | 32            |
| Md.            | 132          | 173          | 46           | 61           | 294                               | 550          | 213           | 247           |
| D.C.           | 45           | 25           | U            | U            | 54                                | 71           | 34            | 87            |
| Va.            | 109          | 162          | 43           | 78           | 123                               | 120          | 221           | 222           |
| W. Va.         | 8            | 11           | 4            | 7            | 2                                 | 2            | 33            | 31            |
| N.C.           | 167          | 240          | 72           | 127          | 400                               | 596          | 348           | 339           |
| S.C.           | 106          | 146          | 51           | 68           | 217                               | 240          | 206           | 227           |
| Ga.            | 185          | 896          | 37           | 214          | 248                               | 231          | 450           | 414           |
| Fla.           | 1,193        | 1,734        | 115          | 480          | 246                               | 230          | 809           | 780           |
| E.S. CENTRAL   | 897          | 829          | 444          | 616          | 913                               | 978          | 704           | 909           |
| Ky.            | 212          | 108          | -            | 45           | 81                                | 84           | 148           | 132           |
| Tenn.          | 508          | 278          | 387          | 364          | 507                               | 459          | 257           | 292           |
| Ala.           | 94           | 397          | 47           | 200          | 182                               | 222          | 243           | 305           |
| Miss.          | 83           | 46           | 10           | 7            | 143                               | 213          | 56            | 180           |
| W.S. CENTRAL   | 1,735        | 3,145        | 1,716        | 1,017        | 780                               | 856          | 1,232         | 1,930         |
| Ark.           | 70           | 169          | 23           | 54           | 57                                | 93           | 135           | 114           |
| La.            | 118          | 247          | 99           | 222          | 200                               | 341          | U             | 211           |
| Okla.          | 421          | 346          | 143          | 96           | 151                               | 76           | 101           | 141           |
| Tex.           | 1,126        | 2,383        | 1,451        | 645          | 372                               | 346          | 996           | 1,464         |
| MOUNTAIN       | 873          | 988          | 517          | 614          | 190                               | 202          | 321           | 434           |
| Mont.          | 7            | 8            | -            | 3            | 1                                 | -            | 10            | 18            |
| Idaho          | 23           | 18           | 7            | 13           | 1                                 | 2            | 14            | 7             |
| Wyo.           | 3            | 3            | 1            | 1            | -                                 | 1            | 3             | 4             |
| Colo.          | 154          | 164          | 120          | 128          | 2                                 | 10           | U             | 50            |
| N. Mex.        | 103          | 240          | 62           | 136          | 9                                 | 22           | 48            | 54            |
| Ariz.          | 456          | 473          | 309          | 290          | 169                               | 151          | 177           | 157           |
| Utah           | 52           | 38           | 12           | 28           | 2                                 | 3            | 32            | 45            |
| Nev.           | 75           | 44           | 6            | 15           | 6                                 | 13           | 37            | 99            |
| PACIFIC        | 2,013        | 2,560        | 172          | 2,536        | 247                               | 313          | 2,770         | 3,115         |
| Wash.          | 90           | 164          | 79           | 144          | 57                                | 27           | 156           | 206           |
| Oreg.          | 76           | 121          | 67           | 119          | 9                                 | 4            | 86            | 111           |
| Calif.         | 1,819        | 2,235        | -            | 2,235        | 178                               | 278          | 2,350         | 2,614         |
| Alaska         | 2            | 6            | 2            | 3            | 1                                 | 1            | 43            | 43            |
| Hawaii         | 26           | 34           | 24           | 35           | 2                                 | 3            | 135           | 141           |
| Guam           | 8            | 31           | U            | U            | 1                                 | 1            | 11            | 75            |
| P.R.           | 62           | 46           | U            | U            | 131                               | 150          | 41            | 122           |
| 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 October 16, 1999, and October 17, 1998 (41st Week)**

| Reporting Area | <i>H. influenzae</i> , invasive |           | Hepatitis (Viral), by type |           |           |           | Measles (Rubeola) |           |           |           |           |           |
|----------------|---------------------------------|-----------|----------------------------|-----------|-----------|-----------|-------------------|-----------|-----------|-----------|-----------|-----------|
|                | Cum. 1999†                      | Cum. 1998 | A                          |           | B         |           | Indigenous        |           | Imported* |           | Total     |           |
|                |                                 |           | Cum. 1999                  | Cum. 1998 | Cum. 1999 | Cum. 1998 | 1999              | Cum. 1999 | 1999      | Cum. 1999 | Cum. 1999 | Cum. 1998 |
| UNITED STATES  | 929                             | 865       | 12,152                     | 17,755    | 5,025     | 7,671     | -                 | 50        | -         | 23        | 73        | 76        |
| NEW ENGLAND    | 75                              | 59        | 219                        | 237       | 76        | 168       | -                 | 6         | -         | 5         | 11        | 3         |
| Maine          | 5                               | 2         | 11                         | 16        | 1         | 2         | -                 | -         | -         | -         | -         | -         |
| N.H.           | 17                              | 10        | 15                         | 11        | 13        | 15        | -                 | -         | -         | 1         | 1         | -         |
| Vt.            | 5                               | 6         | 16                         | 14        | 2         | 8         | -                 | -         | -         | -         | -         | 1         |
| Mass.          | 27                              | 35        | 64                         | 106       | 32        | 59        | -                 | 5         | -         | 3         | 8         | 2         |
| R.I.           | 5                               | 5         | 14                         | 14        | 28        | 58        | -                 | -         | -         | -         | -         | -         |
| Conn.          | 16                              | 1         | 99                         | 76        | -         | 26        | -                 | 1         | -         | 1         | 2         | -         |
| MID. ATLANTIC  | 139                             | 138       | 733                        | 1,382     | 512       | 995       | -                 | -         | -         | 2         | 2         | 14        |
| Upstate N.Y.   | 68                              | 47        | 215                        | 284       | 153       | 189       | -                 | -         | -         | 2         | 2         | 2         |
| N.Y. City      | 31                              | 37        | 212                        | 487       | 157       | 349       | -                 | -         | -         | -         | -         | -         |
| N.J.           | 39                              | 47        | 57                         | 283       | 40        | 173       | -                 | -         | -         | -         | -         | 8         |
| Pa.            | 1                               | 7         | 249                        | 328       | 162       | 284       | -                 | -         | -         | -         | -         | 4         |
| E.N. CENTRAL   | 142                             | 149       | 2,280                      | 2,855     | 523       | 1,166     | -                 | 1         | -         | 1         | 2         | 15        |
| Ohio           | 50                              | 45        | 542                        | 258       | 78        | 64        | -                 | -         | -         | -         | -         | 1         |
| Ind.           | 20                              | 36        | 95                         | 125       | 36        | 92        | -                 | 1         | -         | -         | 1         | 3         |
| Ill.           | 59                              | 52        | 516                        | 645       | 1         | 199       | -                 | -         | -         | -         | -         | -         |
| Mich.          | 13                              | 9         | 1,091                      | 1,658     | 403       | 375       | -                 | -         | -         | 1         | 1         | 10        |
| Wis.           | -                               | 7         | 36                         | 169       | 5         | 436       | -                 | -         | -         | -         | -         | 1         |
| W.N. CENTRAL   | 79                              | 75        | 630                        | 1,176     | 249       | 326       | -                 | -         | -         | -         | -         | -         |
| Minn.          | 38                              | 58        | 61                         | 108       | 41        | 41        | -                 | -         | -         | -         | -         | -         |
| Iowa           | 9                               | 2         | 117                        | 379       | 33        | 48        | -                 | -         | -         | -         | -         | -         |
| Mo.            | 23                              | 8         | 352                        | 551       | 133       | 191       | -                 | -         | -         | -         | -         | -         |
| N. Dak.        | 1                               | -         | 2                          | 3         | -         | 4         | U                 | -         | U         | -         | -         | -         |
| S. Dak.        | 1                               | -         | 8                          | 21        | 1         | 2         | -                 | -         | -         | -         | -         | -         |
| Nebr.          | 3                               | 1         | 50                         | 25        | 14        | 18        | -                 | -         | -         | -         | -         | -         |
| Kans.          | 4                               | 6         | 40                         | 89        | 27        | 22        | U                 | -         | U         | -         | -         | -         |
| S. ATLANTIC    | 209                             | 158       | 1,652                      | 1,546     | 995       | 807       | -                 | 9         | -         | 6         | 15        | 8         |
| Del.           | -                               | -         | 2                          | 3         | 1         | 3         | U                 | -         | U         | -         | -         | 1         |
| Md.            | 54                              | 50        | 297                        | 333       | 139       | 115       | -                 | -         | -         | -         | -         | 1         |
| D.C.           | 4                               | -         | 54                         | 55        | 21        | 11        | U                 | -         | U         | -         | -         | -         |
| Va.            | 16                              | 16        | 138                        | 173       | 74        | 84        | -                 | 9         | -         | 3         | 12        | 2         |
| W. Va.         | 6                               | 6         | 32                         | 6         | 22        | 8         | -                 | -         | -         | -         | -         | -         |
| N.C.           | 29                              | 23        | 132                        | 99        | 194       | 173       | -                 | -         | -         | 1         | 1         | -         |
| S.C.           | 5                               | 3         | 41                         | 33        | 63        | 31        | -                 | -         | -         | -         | -         | -         |
| Ga.            | 55                              | 35        | 400                        | 485       | 143       | 127       | -                 | -         | -         | -         | -         | 2         |
| Fla.           | 40                              | 25        | 556                        | 359       | 338       | 255       | -                 | -         | -         | 2         | 2         | 2         |
| E.S. CENTRAL   | 52                              | 48        | 324                        | 323       | 341       | 404       | -                 | 2         | -         | -         | 2         | 2         |
| Ky.            | 6                               | 7         | 55                         | 27        | 34        | 40        | -                 | 2         | -         | -         | 2         | -         |
| Tenn.          | 28                              | 28        | 142                        | 186       | 170       | 226       | -                 | -         | -         | -         | -         | 1         |
| Ala.           | 15                              | 11        | 45                         | 59        | 68        | 62        | -                 | -         | -         | -         | -         | 1         |
| Miss.          | 3                               | 2         | 82                         | 51        | 69        | 76        | -                 | -         | -         | -         | -         | -         |
| W.S. CENTRAL   | 45                              | 44        | 2,357                      | 3,120     | 702       | 1,693     | -                 | 5         | -         | 4         | 9         | -         |
| Ark.           | 2                               | -         | 46                         | 73        | 38        | 89        | -                 | -         | -         | -         | -         | -         |
| La.            | 7                               | 20        | 73                         | 76        | 77        | 121       | U                 | -         | U         | -         | -         | -         |
| Okla.          | 32                              | 22        | 383                        | 471       | 107       | 71        | -                 | -         | -         | -         | -         | -         |
| Tex.           | 4                               | 2         | 1,855                      | 2,500     | 480       | 1,412     | -                 | 5         | -         | 4         | 9         | -         |
| MOUNTAIN       | 96                              | 96        | 1,069                      | 2,687     | 474       | 684       | -                 | 3         | -         | -         | 3         | -         |
| Mont.          | 2                               | -         | 17                         | 85        | 17        | 5         | -                 | -         | -         | -         | -         | -         |
| Idaho          | 1                               | -         | 35                         | 221       | 25        | 38        | -                 | -         | -         | -         | -         | -         |
| Wyo.           | 1                               | 1         | 7                          | 33        | 12        | 7         | -                 | -         | -         | -         | -         | -         |
| Colo.          | 11                              | 21        | 187                        | 263       | 77        | 87        | -                 | -         | -         | -         | -         | -         |
| N. Mex.        | 18                              | 5         | 42                         | 124       | 149       | 267       | -                 | -         | -         | -         | -         | -         |
| Ariz.          | 52                              | 46        | 625                        | 1,607     | 127       | 149       | -                 | 1         | -         | -         | 1         | -         |
| Utah           | 8                               | 4         | 42                         | 163       | 27        | 62        | -                 | 2         | -         | -         | 2         | -         |
| Nev.           | 3                               | 19        | 114                        | 191       | 40        | 69        | U                 | -         | U         | -         | -         | -         |
| PACIFIC        | 92                              | 98        | 2,888                      | 4,429     | 1,153     | 1,428     | -                 | 24        | -         | 5         | 29        | 34        |
| Wash.          | 4                               | 8         | 263                        | 853       | 55        | 86        | -                 | -         | -         | -         | -         | 1         |
| Oreg.          | 36                              | 37        | 212                        | 348       | 78        | 150       | -                 | 9         | -         | -         | 9         | -         |
| Calif.         | 40                              | 43        | 2,393                      | 3,162     | 994       | 1,167     | -                 | 15        | -         | 4         | 19        | 7         |
| Alaska         | 5                               | 3         | 8                          | 16        | 14        | 12        | -                 | -         | -         | -         | -         | 26        |
| Hawaii         | 7                               | 7         | 12                         | 50        | 12        | 13        | -                 | -         | -         | 1         | 1         | -         |
| Guam           | -                               | -         | 2                          | 1         | 2         | 2         | U                 | 1         | U         | -         | 1         | -         |
| P.R.           | 1                               | 2         | 112                        | 51        | 102       | 198       | -                 | -         | -         | -         | -         | -         |
| 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 176 cases among children aged <5 years, serotype was reported for 90 and of those, 24 were type b.

**TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 16, 1999, and October 17, 1998 (41st 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  | 1,897                 | 2,117     | 4     | 263       | 547       | 66        | 4,246     | 5,084     | 1       | 226       | 341       |
| NEW ENGLAND    | 94                    | 94        | -     | 6         | 7         | 7         | 509       | 822       | -       | 7         | 38        |
| Maine          | 5                     | 5         | -     | -         | -         | -         | -         | 5         | -       | -         | -         |
| N.H.           | 12                    | 11        | -     | 1         | -         | 1         | 78        | 88        | -       | -         | -         |
| Vt.            | 4                     | 5         | -     | 1         | -         | -         | 52        | 66        | -       | -         | -         |
| Mass.          | 55                    | 41        | -     | 4         | 4         | 6         | 341       | 616       | -       | 7         | 8         |
| R.I.           | 4                     | 7         | -     | -         | 1         | -         | 24        | 9         | -       | -         | 1         |
| Conn.          | 14                    | 25        | -     | -         | 2         | -         | 14        | 38        | -       | -         | 29        |
| MID. ATLANTIC  | 168                   | 222       | -     | 28        | 178       | 4         | 688       | 506       | -       | 22        | 146       |
| Upstate N.Y.   | 52                    | 59        | -     | 9         | 6         | 4         | 602       | 269       | -       | 18        | 114       |
| N.Y. City      | 44                    | 27        | -     | 3         | 155       | -         | 10        | 31        | -       | -         | 18        |
| N.J.           | 39                    | 51        | -     | -         | 6         | -         | 12        | 18        | -       | 1         | 13        |
| Pa.            | 33                    | 85        | -     | 16        | 11        | -         | 64        | 188       | -       | 3         | 1         |
| E.N. CENTRAL   | 331                   | 322       | 1     | 33        | 69        | 10        | 325       | 639       | -       | 2         | -         |
| Ohio           | 119                   | 116       | 1     | 14        | 26        | 7         | 173       | 225       | -       | -         | -         |
| Ind.           | 55                    | 56        | -     | 4         | 6         | -         | 54        | 113       | -       | 1         | -         |
| Ill.           | 87                    | 85        | -     | 8         | 9         | -         | 49        | 86        | -       | 1         | -         |
| Mich.          | 40                    | 38        | -     | 7         | 26        | 3         | 45        | 57        | -       | -         | -         |
| Wis.           | 30                    | 27        | -     | -         | 2         | -         | 4         | 158       | -       | -         | -         |
| W.N. CENTRAL   | 210                   | 183       | 1     | 12        | 28        | 7         | 297       | 437       | -       | 123       | 35        |
| Minn.          | 45                    | 29        | -     | 1         | 12        | -         | 154       | 242       | -       | 5         | -         |
| Iowa           | 39                    | 34        | 1     | 6         | 10        | 4         | 46        | 62        | -       | 29        | -         |
| Mo.            | 82                    | 67        | -     | 2         | 3         | 3         | 50        | 30        | -       | 2         | 2         |
| N. Dak.        | 3                     | 5         | U     | -         | 2         | U         | 4         | 3         | U       | -         | -         |
| S. Dak.        | 11                    | 7         | -     | -         | -         | -         | 5         | 8         | -       | -         | -         |
| Nebr.          | 12                    | 13        | -     | -         | -         | -         | 3         | 15        | -       | 87        | -         |
| Kans.          | 18                    | 28        | U     | 3         | 1         | U         | 35        | 77        | U       | -         | 33        |
| S. ATLANTIC    | 334                   | 346       | 1     | 43        | 43        | 12        | 340       | 268       | -       | 36        | 18        |
| Del.           | 7                     | 2         | U     | -         | -         | U         | 4         | 5         | U       | -         | -         |
| Md.            | 48                    | 25        | -     | 3         | -         | -         | 97        | 52        | -       | 1         | 1         |
| D.C.           | 1                     | 1         | U     | 2         | -         | U         | -         | 1         | U       | -         | -         |
| Va.            | 44                    | 31        | -     | 9         | 7         | -         | 19        | 27        | -       | -         | 1         |
| W. Va.         | 6                     | 14        | -     | -         | -         | -         | 2         | 1         | -       | -         | -         |
| N.C.           | 37                    | 48        | -     | 8         | 10        | 2         | 85        | 89        | -       | 35        | 13        |
| S.C.           | 41                    | 49        | -     | 4         | 6         | -         | 15        | 25        | -       | -         | -         |
| Ga.            | 52                    | 79        | -     | 4         | 1         | 1         | 35        | 22        | -       | -         | -         |
| Fla.           | 98                    | 97        | 1     | 13        | 19        | 9         | 83        | 46        | -       | -         | 3         |
| E.S. CENTRAL   | 119                   | 165       | -     | 11        | 13        | -         | 69        | 108       | -       | 1         | 2         |
| Ky.            | 26                    | 29        | -     | -         | -         | -         | 20        | 48        | -       | -         | -         |
| Tenn.          | 43                    | 58        | -     | -         | 1         | -         | 28        | 32        | -       | -         | 2         |
| Ala.           | 29                    | 44        | -     | 8         | 7         | -         | 18        | 24        | -       | 1         | -         |
| Miss.          | 21                    | 34        | -     | 3         | 5         | -         | 3         | 4         | -       | -         | -         |
| W.S. CENTRAL   | 146                   | 257       | -     | 30        | 53        | 8         | 148       | 314       | 1       | 15        | 87        |
| Ark.           | 31                    | 27        | -     | -         | 11        | 1         | 18        | 63        | 1       | 6         | -         |
| La.            | 34                    | 50        | U     | 3         | 6         | U         | 3         | 8         | U       | -         | -         |
| Okla.          | 26                    | 35        | -     | 1         | -         | -         | 12        | 31        | -       | -         | -         |
| Tex.           | 55                    | 145       | -     | 26        | 36        | 7         | 115       | 212       | -       | 9         | 87        |
| MOUNTAIN       | 121                   | 118       | -     | 23        | 35        | 16        | 565       | 895       | -       | 16        | 5         |
| Mont.          | 2                     | 4         | -     | -         | -         | -         | 2         | 9         | -       | -         | -         |
| Idaho          | 10                    | 9         | -     | 1         | 4         | 1         | 130       | 211       | -       | -         | -         |
| Wyo.           | 4                     | 5         | -     | -         | 1         | -         | 2         | 8         | -       | -         | -         |
| Colo.          | 31                    | 22        | -     | 5         | 6         | 11        | 163       | 217       | -       | 1         | -         |
| N. Mex.        | 13                    | 24        | N     | N         | N         | 2         | 110       | 86        | -       | -         | 1         |
| Ariz.          | 41                    | 37        | -     | 7         | 6         | 2         | 98        | 179       | -       | 13        | 1         |
| Utah           | 13                    | 10        | -     | 5         | 5         | -         | 55        | 146       | -       | 1         | 2         |
| Nev.           | 7                     | 7         | U     | 5         | 13        | U         | 5         | 39        | U       | 1         | 1         |
| PACIFIC        | 374                   | 410       | 1     | 77        | 121       | 2         | 1,305     | 1,095     | -       | 4         | 10        |
| Wash.          | 59                    | 58        | -     | 2         | 8         | -         | 581       | 266       | -       | -         | 5         |
| Oreg.          | 65                    | 70        | N     | N         | N         | 2         | 44        | 75        | -       | -         | -         |
| Calif.         | 240                   | 274       | 1     | 61        | 88        | -         | 648       | 725       | -       | 4         | 3         |
| Alaska         | 5                     | 3         | -     | 2         | 2         | -         | 4         | 14        | -       | -         | -         |
| Hawaii         | 5                     | 5         | -     | 12        | 23        | -         | 28        | 15        | -       | -         | 2         |
| Guam           | 2                     | 2         | U     | 1         | 5         | U         | 1         | 1         | U       | -         | -         |
| P.R.           | 5                     | 9         | -     | -         | 3         | -         | 16        | 4         | -       | -         | 12        |
| 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  
October 16, 1999 (41st 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         | 545                        | 381   | 107   | 33    | 12   | 12 | 41   | S. ATLANTIC           | 796            | 528                        | 158   | 69    | 15    | 22   | 58  |      |       |
| Boston, Mass.       | 151                        | 90    | 38    | 12    | 7    | 4  | 8    | Atlanta, Ga.          | U              | U                          | U     | U     | U     | U    | U   |      |       |
| Bridgeport, Conn.   | 39                         | 28    | 7     | 3     | 1    | -  | -    | Baltimore, Md.        | 113            | 70                         | 23    | 17    | 3     | -    | 9   |      |       |
| Cambridge, Mass.    | 21                         | 16    | 4     | -     | 1    | -  | 1    | Charlotte, N.C.       | 100            | 69                         | 16    | 6     | -     | 8    | 11  |      |       |
| Fall River, Mass.   | 26                         | 21    | 5     | -     | -    | -  | 1    | Jacksonville, Fla.    | 94             | 60                         | 21    | 8     | 2     | 3    | 3   |      |       |
| Hartford, Conn.     | U                          | U     | U     | U     | U    | U  | U    | Miami, Fla.           | 111            | 58                         | 27    | 19    | 6     | -    | 6   |      |       |
| Lowell, Mass.       | 22                         | 16    | 3     | 3     | -    | -  | 3    | Norfolk, Va.          | 48             | 35                         | 8     | 2     | -     | 3    | 4   |      |       |
| Lynn, Mass.         | 20                         | 16    | 2     | 2     | -    | -  | 1    | Richmond, Va.         | 64             | 42                         | 12    | 5     | -     | 5    | 5   |      |       |
| New Bedford, Mass.  | 23                         | 21    | 2     | -     | -    | -  | 3    | Savannah, Ga.         | 45             | 38                         | 5     | -     | 1     | 1    | 3   |      |       |
| New Haven, Conn.    | 42                         | 26    | 7     | 5     | -    | 4  | 5    | St. Petersburg, Fla.  | 59             | 48                         | 6     | 4     | -     | 1    | 8   |      |       |
| Providence, R.I.    | 70                         | 53    | 10    | 4     | -    | 3  | 6    | Tampa, Fla.           | 151            | 105                        | 32    | 8     | 3     | 1    | 9   |      |       |
| Somerville, Mass.   | 5                          | 3     | 2     | -     | -    | -  | -    | Washington, D.C.      | U              | U                          | U     | U     | U     | U    | U   |      |       |
| Springfield, Mass.  | 44                         | 33    | 8     | 1     | 2    | -  | 2    | Wilmington, Del.      | 11             | 3                          | 8     | -     | -     | -    | -   |      |       |
| Waterbury, Conn.    | 21                         | 15    | 6     | -     | -    | -  | 2    | E.S. CENTRAL          | 741            | 476                        | 170   | 60    | 16    | 19   | 69  |      |       |
| Worcester, Mass.    | 61                         | 43    | 13    | 3     | 1    | 1  | 9    | Birmingham, Ala.      | 149            | 99                         | 35    | 11    | 1     | 3    | 19  |      |       |
| MID. ATLANTIC       | 2,145                      | 1,527 | 385   | 134   | 40   | 59 | 93   | Chattanooga, Tenn.    | 57             | 45                         | 4     | 4     | 2     | 2    | 5   |      |       |
| Albany, N.Y.        | 63                         | 41    | 12    | 4     | 4    | 2  | 4    | Knoxville, Tenn.      | 66             | 41                         | 19    | 4     | 2     | -    | 8   |      |       |
| Allentown, Pa.      | U                          | U     | U     | U     | U    | U  | U    | Lexington, Ky.        | 63             | 35                         | 17    | 9     | 1     | 1    | 8   |      |       |
| Buffalo, N.Y.       | 99                         | 65    | 28    | 3     | 1    | 2  | 7    | Memphis, Tenn.        | 141            | 103                        | 25    | 7     | 1     | 5    | 15  |      |       |
| Camden, N.J.        | 28                         | 18    | 5     | 4     | 1    | -  | 1    | Mobile, Ala.          | 78             | 49                         | 18    | 6     | 3     | 2    | 5   |      |       |
| Elizabeth, N.J.     | 11                         | 8     | 1     | 2     | -    | -  | 2    | Montgomery, Ala.      | 68             | 34                         | 23    | 7     | 1     | 3    | 5   |      |       |
| Erie, Pa.           | 37                         | 29    | 6     | 2     | -    | -  | 1    | Nashville, Tenn.      | 119            | 70                         | 29    | 12    | 5     | 3    | 4   |      |       |
| Jersey City, N.J.   | 48                         | 32    | 11    | 5     | -    | -  | -    | W.S. CENTRAL          | 1,383          | 847                        | 310   | 143   | 38    | 45   | 76  |      |       |
| New York City, N.Y. | 1,077                      | 767   | 206   | 71    | 18   | 15 | 26   | Austin, Tex.          | 70             | 42                         | 16    | 7     | 2     | 3    | 4   |      |       |
| Newark, N.J.        | 41                         | 20    | 8     | 7     | 2    | 4  | 4    | Baton Rouge, La.      | 24             | 14                         | 4     | 4     | 1     | 1    | 1   |      |       |
| Paterson, N.J.      | 31                         | 24    | 3     | 2     | 1    | 1  | -    | Corpus Christi, Tex.  | 58             | 38                         | 10    | 5     | 2     | 3    | 2   |      |       |
| Philadelphia, Pa.   | 296                        | 201   | 41    | 19    | 10   | 25 | 5    | Dallas, Tex.          | 179            | 98                         | 51    | 15    | 8     | 7    | 4   |      |       |
| Pittsburgh, Pa.‡    | 52                         | 37    | 9     | 3     | 1    | 2  | 6    | El Paso, Tex.         | 81             | 57                         | 11    | 10    | 2     | 1    | 1   |      |       |
| Reading, Pa.        | 37                         | 33    | 4     | -     | -    | -  | 6    | Ft. Worth, Tex.       | 95             | 66                         | 16    | 10    | -     | 3    | 8   |      |       |
| Rochester, N.Y.     | 114                        | 98    | 12    | 3     | -    | 1  | 9    | Houston, Tex.         | 350            | 205                        | 89    | 39    | 7     | 10   | 28  |      |       |
| Schenectady, N.Y.   | 27                         | 22    | 4     | 1     | -    | -  | 2    | Little Rock, Ark.     | 49             | 26                         | 10    | 5     | 5     | 3    | -   |      |       |
| Scranton, Pa.       | 30                         | 24    | 2     | 2     | 1    | 1  | 2    | New Orleans, La.      | 129            | 75                         | 32    | 16    | 2     | 4    | 12  |      |       |
| Syracuse, N.Y.      | 110                        | 78    | 23    | 4     | 1    | 4  | 13   | San Antonio, Tex.     | 163            | 96                         | 37    | 19    | 6     | 5    | 10  |      |       |
| Trenton, N.J.       | 44                         | 30    | 10    | 2     | -    | 2  | 5    | Shreveport, La.       | 55             | 41                         | 5     | 8     | -     | 1    | 4   |      |       |
| Utica, N.Y.         | U                          | U     | U     | U     | U    | U  | U    | Tulsa, Okla.          | 130            | 89                         | 29    | 5     | 3     | 4    | 2   |      |       |
| Yonkers, N.Y.       | U                          | U     | U     | U     | U    | U  | U    | MOUNTAIN              | 914            | 589                        | 198   | 78    | 26    | 22   | 58  |      |       |
| E.N. CENTRAL        | 1,429                      | 1,003 | 274   | 81    | 32   | 39 | 109  | Albuquerque, N.M.     | 110            | 81                         | 17    | 5     | 4     | 3    | 8   |      |       |
| Akron, Ohio         | 38                         | 27    | 7     | 2     | -    | 2  | 7    | Boise, Idaho          | 34             | 25                         | 4     | 2     | 1     | 2    | 2   |      |       |
| Canton, Ohio        | 40                         | 32    | 7     | 1     | -    | -  | 7    | Colo. Springs, Colo.  | 53             | 33                         | 13    | 6     | -     | 1    | 2   |      |       |
| Chicago, Ill.       | U                          | U     | U     | U     | U    | U  | U    | Denver, Colo.         | 103            | 56                         | 29    | 12    | 4     | 2    | 10  |      |       |
| Cincinnati, Ohio    | 99                         | 65    | 14    | 9     | 6    | 5  | 10   | Las Vegas, Nev.       | 182            | 118                        | 45    | 12    | 4     | 3    | 10  |      |       |
| Cleveland, Ohio     | 125                        | 78    | 32    | 7     | 2    | 6  | 2    | Ogden, Utah           | 34             | 25                         | 6     | 1     | 2     | -    | 3   |      |       |
| Columbus, Ohio      | 158                        | 115   | 27    | 3     | 3    | 10 | 13   | Phoenix, Ariz.        | 152            | 83                         | 35    | 21    | 6     | 6    | 6   |      |       |
| Dayton, Ohio        | 120                        | 87    | 22    | 8     | 1    | 2  | 11   | Pueblo, Colo.         | 26             | 20                         | 5     | -     | 1     | -    | 1   |      |       |
| Detroit, Mich.      | U                          | U     | U     | U     | U    | U  | U    | Salt Lake City, Utah  | 86             | 58                         | 13    | 11    | 3     | 1    | 7   |      |       |
| Evansville, Ind.    | 50                         | 35    | 13    | 1     | -    | 1  | 3    | Tucson, Ariz.         | 134            | 90                         | 31    | 8     | 1     | 4    | 9   |      |       |
| Fort Wayne, Ind.    | 60                         | 44    | 6     | 6     | 1    | 3  | 1    | PACIFIC               | 1,612          | 1,128                      | 276   | 131   | 49    | 27   | 129 |      |       |
| Gary, Ind.          | 14                         | 6     | 6     | 1     | 1    | -  | 1    | Berkeley, Calif.      | 18             | 13                         | 4     | 1     | -     | -    | -   |      |       |
| Grand Rapids, Mich. | 79                         | 56    | 17    | 3     | 1    | 2  | 12   | Fresno, Calif.        | 83             | 58                         | 19    | 4     | 2     | -    | 6   |      |       |
| Indianapolis, Ind.  | 193                        | 124   | 47    | 15    | 6    | 1  | 8    | Glendale, Calif.      | 17             | 13                         | 3     | -     | 1     | -    | -   |      |       |
| Lansing, Mich.      | 42                         | 37    | 3     | -     | 2    | -  | 5    | Honolulu, Hawaii      | 73             | 58                         | 13    | -     | 2     | -    | 7   |      |       |
| Milwaukee, Wis.     | 119                        | 86    | 22    | 5     | 3    | 3  | 10   | Long Beach, Calif.    | 78             | 49                         | 16    | 8     | 2     | 3    | 10  |      |       |
| Peoria, Ill.        | 47                         | 33    | 9     | 2     | 2    | 1  | 5    | Los Angeles, Calif.   | 312            | 199                        | 56    | 39    | 8     | 10   | 11  |      |       |
| Rockford, Ill.      | 60                         | 40    | 9     | 8     | 1    | 2  | 2    | Pasadena, Calif.      | U              | U                          | U     | U     | U     | U    | U   |      |       |
| South Bend, Ind.    | 36                         | 25    | 8     | 3     | -    | -  | 4    | Portland, Oreg.       | 123            | 77                         | 20    | 20    | 5     | 1    | 8   |      |       |
| Toledo, Ohio        | 104                        | 73    | 20    | 7     | 3    | 1  | 6    | Sacramento, Calif.    | 161            | 121                        | 26    | 10    | 2     | 2    | 26  |      |       |
| Youngstown, Ohio    | 45                         | 40    | 5     | -     | -    | -  | 2    | San Diego, Calif.     | 138            | 92                         | 28    | 9     | 6     | 3    | 11  |      |       |
| W.N. CENTRAL        | 753                        | 542   | 129   | 46    | 20   | 16 | 42   | San Francisco, Calif. | 130            | 95                         | 13    | 13    | 4     | 4    | 12  |      |       |
| Des Moines, Iowa    | U                          | U     | U     | U     | U    | U  | U    | San Jose, Calif.      | 170            | 128                        | 29    | 6     | 5     | 2    | 14  |      |       |
| Duluth, Minn.       | 25                         | 17    | 8     | -     | -    | -  | 3    | Santa Cruz, Calif.    | 25             | 18                         | 3     | 3     | 1     | -    | 1   |      |       |
| Kansas City, Kans.  | 31                         | 25    | 4     | 1     | 1    | -  | 2    | Seattle, Wash.        | 114            | 77                         | 21    | 9     | 5     | 2    | 10  |      |       |
| Kansas City, Mo.    | 90                         | 61    | 16    | 8     | 3    | 2  | 6    | Spokane, Wash.        | 59             | 49                         | 3     | 6     | 1     | -    | 8   |      |       |
| Lincoln, Nebr.      | 58                         | 52    | 5     | -     | 1    | -  | 2    | Tacoma, Wash.         | 111            | 81                         | 22    | 3     | 5     | -    | 5   |      |       |
| Minneapolis, Minn.  | 198                        | 142   | 38    | 12    | 3    | 3  | 19   | TOTAL                 | 10,318†        | 7,021                      | 2,007 | 775   | 248   | 261  | 675 |      |       |
| Omaha, Nebr.        | 76                         | 54    | 15    | 2     | 4    | 1  | 1    |                       |                |                            |       |       |       |      |     |      |       |
| St. Louis, Mo.      | 111                        | 67    | 18    | 13    | 7    | 6  | 2    |                       |                |                            |       |       |       |      |     |      |       |
| St. Paul, Minn.     | 77                         | 64    | 8     | 2     | -    | 3  | 3    |                       |                |                            |       |       |       |      |     |      |       |
| Wichita, Kans.      | 87                         | 60    | 17    | 8     | 1    | 1  | 4    |                       |                |                            |       |       |       |      |     |      |       |

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.

*West Nile Encephalitis — Continued*

All state epidemiologists have been informed of the characteristics of this outbreak and encouraged to enhance surveillance for cases of human encephalitis. Monitoring of mosquitoes and birds has been increased in several states with existing vector-control programs. Training to institute programs for arbovirus and mosquito vector surveillance will be offered to states without programs, beginning with Atlantic coast states. In addition, the emerging infections sentinel networks coordinated by the Infectious Diseases Society of America (IDSA EIN) and the International Society of Travel Medicine (GeoSentinel) are assisting case-finding efforts to define the extent of the outbreak in the United States.

A previous publication indicated that the New York virus was more closely related to Kunjin virus (2). Data in this report based on phylogenetic analysis comparing published E-glycoprotein sequences from WNVs and other flaviviruses, including Kunjin, St. Louis encephalitis, and Japanese encephalitis indicate that the New York virus is WN. Complete genome sequencing of multiple WNV isolates is in progress.

*References*

1. CDC. Update: West Nile-like viral encephalitis—New York, 1999. *MMWR* 1999;48:890–2.
2. Briese T, Jia XY, Huang C, Grady LJ, Lipkin WI. Identification of a Kunjin/West Nile-like flavivirus in brains of patients with New York encephalitis [Letter]. *Lancet* 1999;354:1261–2.

*Notice to Readers***Update: Changes to *MMWR*  
Continuing Education Data Management System**

*MMWR Recommendations and Reports* first published a Continuing Education (CE) component on October 16, 1998. Since then, eight additional CE programs have been published in *MMWR Recommendations and Reports* to provide continuing medical education (CME), continuing nursing education (CNE), and continuing education unit (CEU) credits for physicians, nurses, and other health-care professionals at no cost to the user. Approximately 35,000 examinations have been submitted in print or electronically by *MMWR* readers. Because of the unexpectedly large response to the program, reviewing print examinations and mailing certificates to *MMWR* readers have been delayed.

To address the backlog in processing previously submitted examinations, and to effectively manage a program of this size, *MMWR* has installed a new examination management system. The new system speeds processing of examinations submitted by mail and allows the user to complete tests and receive credit through the World-Wide Web (<http://www2.cdc.gov/mmwr/cme/conted.html>). To reduce the costs of this free service, *MMWR* readers are encouraged to use the online examinations. The new system will require prior users of the online system to re-register. Users who registered and took examinations online before October 21, 1999, will not be able to view their complete transcripts until the old database is merged with the new database, which should be completed by January 2000. Questions concerning the change should be sent by e-mail to the continuing education coordinator at [mmwrce@cdc.gov](mailto:mmwrce@cdc.gov).

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