CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

September 20, 1996 / Vol. 45 / No. 37

MMWR™
MORBIDITY AND MORTALITY WEEKLY REPORT

Knowledge About Folic Acid and Use of Multivitamins Containing Folic Acid Among Reproductive-Aged Women — Georgia, 1995

Neural tube defects (NTDs) are serious birth defects that affect an estimated 4000 pregnancies each year in the United States (*1*). However, women can substantially decrease the risk for this birth defect by consuming 400 μg (0.4 mg) of folic acid per day before conception and during early pregnancy. In September 1992, the Public Health Service (PHS) recommended that all women of childbearing age who are capable of becoming pregnant consume 400 μg of folic acid daily (*2*). To characterize knowledge about the benefits of folic acid and use of multivitamins containing folic acid among Georgia women, the Division of Public Health, Georgia Department of Human Resources (GDHR), analyzed data from the 1995 Georgia Women's Health Survey (GWHS)—a comprehensive study of women's health that included questions about folic acid. This report summarizes the survey findings regarding knowledge and use of folic acid, which indicate that only 20% of Georgia women aged 15–44 years consumed a multivitamin containing ≥400 μg of folic acid per day, and 71% did not know that folic acid can prevent some birth defects.

GDHR conducted the GWHS during January–July 1995. GWHS was a random-digit–dialed telephone survey of a probability sample of 4005 Georgia women aged 15–44 years; 3130 (78%) women responded (*3*). Data for households with more than one eligible woman or multiple residential phone numbers were weighted to adjust for the unequal probability of selection. The sample was highly representative of all childbearing-aged women in Georgia (*3*).

Survey respondents were asked, "During the past 30 days, how often have you taken multivitamins?"; responses were "every day," "several times a week," "once a week," "less than once a week," and "don't know." Respondents also were asked "What brand of multivitamins do you or did you take most often?" and "Have you heard or read that taking a vitamin called folic acid can help prevent some birth defects?" The amount of folic acid women consumed was estimated based on the amount in the multivitamin brand they reported using.

Overall, 20% (95% confidence interval [CI]=19%–21%) of respondents reported consuming a multivitamin containing ≥400 μg of folic acid per day, 5% (95% CI=4%–6%) reported consuming a multivitamin containing ≥400 μg of folic acid several times a week, and 29% (95% CI=27%–30%) reported they had heard folic acid can help

Folic Acid — Continued

prevent some birth defects. Of those who had heard folic acid can help prevent some birth defects, 30% (95% CI=27%–32%) reported consuming a multivitamin containing ≥400 μg of folic acid per day, and 6% (95% CI=5%–8%) reported consuming a multivitamin containing ≥400 μg of folic acid several times a week. Of the 71% (95% CI=70%–73%) who had not heard about folic acid, 16% (95% CI=15%–18%) reported consuming a multivitamin containing ≥400 μg of folic acid per day, and 4% (95% CI=3%–5%) reported consuming a multivitamin containing ≥400 μg of folic acid several times a week.

Prevalence of knowledge about folic acid varied directly by respondents' educational and income levels. Women with a college degree were more likely to have heard about folic acid than were those with only some high school (45% [95% CI=41%–49%] versus 12% [95% CI=9%–15%]), and women with incomes above 150% of poverty level were more likely than women with incomes below 150% of poverty level (31% [95% CI=29%–33%] versus 18% [95% CI=15%–21%]).* Women with higher educational levels were more likely to consume a multivitamin containing ≥400 μg of folic acid per day than were less educated women (some high school education [10% (95% CI=7%–13%)], high school diploma [20% (95% CI=17%–23%)], some college education [23% (95% CI=20%–25%)], and college or postgraduate degree [27% (95% CI=24%–30%)]), and women with incomes above 150% of poverty level were more likely than women with incomes below 150% of poverty level (22% [95% CI=20%–23%] versus 14% [95% CI=11%–17%]).

For each educational level, women who reported knowledge of folic acid were more likely to have consumed a multivitamin containing ≥400 μg of folic acid per day than women who had not heard about folic acid. Among women who had heard about folic acid, the prevalence of consuming a multivitamin containing ≥400 μg per day was 16% (95% CI=8%–24%) for those with some high school education; 32% (95% CI=26%–38%), with a high school diploma; 32% (95% CI=27%–37%), with some college education; and 29% (95% CI=25%–34%), with a college degree.

Reported by: F Serbanescu, MD, R Rochat, MD, Office of Perinatal Epidemiology, Epidemiology and Prevention Br, V Floyd, MD, Family Health Br, KE Toomey, MD, State Epidemiologist, Div of Public Health, Georgia Dept of Human Resources. Birth Defects and Genetic Diseases Br, Div of Birth Defects and Developmental Disabilities, National Center for Environmental Health; Pregnancy and Infant Health Br, and Behavioral Epidemiology and Demographic Research Br, Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The findings in this report are subject to at least two limitations. First, folic acid consumption in the GWHS was measured on the basis of reported use of multivitamins only; no information was obtained about consumption of folic acid tablets or foods fortified with folic acid. Second, 22% of the sample did not participate in the survey, and the survey excluded households without telephones; therefore, prevalences of knowledge and use of folic acid may be overestimated.

In 1986 and 1995, nationwide surveys estimated that 20% and 25% of U.S. women, respectively, reported consuming a multivitamin containing ≥400 μg of folic acid per day (*4,5*); in South Carolina, 12% of the women who gave birth during October 1992–September 1994 reported consuming a multivitamin containing ≥400 μg per day (*6*).

*Poverty statistics are based on a definition originated by the Social Security Administration in 1964, that was subsequently modified by federal interagency committees in 1969 and 1980, and prescribed by the Office of Management and Budget as the standard to be used by federal agencies for statistical purposes.

Folic Acid — Continued

These studies and the GWHS findings underscore that 75%–88% of the 60 million women of reproductive age in the United States may not obtain the amount of folic acid recommended by PHS to reduce the risk for spina bifida and other NTDs. In addition, GWHS and a recent survey by the March of Dimes (*5*) indicate a substantial percentage of reproductive-aged women remain unaware of the potential benefits of folic acid despite publication of the PHS recommendation in 1992.

The results of the survey in Georgia underscore the need for continuing efforts to increase consumption of and awareness about the benefits of folic acid among women of childbearing age. Convenient approaches for ensuring that women obtain adequate amounts of folic acid to reduce the risk for NTDs include daily consumption of either a vitamin supplement or a fortified breakfast cereal containing 400 μg of folic acid. In March 1996, the Food and Drug Administration (FDA) required many enriched foods (e.g., most flours, corn meals, pasta, and rice) to be fortified with 140 μg of folic acid per 100 g of cereal grains by January 1, 1998 (*7*); this mandate will increase daily consumption of folic acid on average by 100 μg. FDA also issued a regulation that permits the labels of products containing sufficient amounts of folate to claim the products may reduce the risk for having a pregnancy with NTDs (*8*). The use of health claims on folic acid-containing products and folate-rich foods (e.g., orange juice and green leafy vegetables) will assist in increasing awareness about the benefits of folic acid.

Because women who know about the benefits of folic acid are more likely to consume daily a multivitamin containing 400 μg of folic acid, the design and implementation of health education programs for women of childbearing age will be important in educating them about these benefits at the earliest possible time before they become pregnant.

References

1. CDC. Surveillance for anencephaly and spina bifida and the impact of prenatal diagnosis—United States, 1985–1994. In: CDC surveillance summaries (August 25). MMWR 1995;44 (no. SS-4).
2. CDC. Recommendations for the use of folic acid to reduce the number of cases of spina bifida and other neural tube defects. MMWR 1992;41(no. RR-14).
3. Serbanescu F, Rochat R. Georgia Women's Health Survey, 1995: preliminary report, September 1996. Atlanta, Georgia: Georgia Department of Human Resources, Division of Public Health, Epidemiology and Prevention Branch, Office of Perinatal Epidemiology (in press).
4. Moss AJ, Levy AS, Kim I, Park YK. Use of vitamin and mineral supplements in the United States: current users, types of products, and nutrients. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, National Center for Health Statistics, 1989.
5. CDC. Knowledge and use of folic acid by women of childbearing age—United States, 1995. MMWR 1995;44:716–8.
6. CDC. Prevention program for reducing risk for neural tube defects—South Carolina, 1992–1994. MMWR 1995;44:141–2.
7. Food and Drug Administration. Food standards: amendment of standards of identity for enriched grain products to require addition of folic acid. Federal Register 1996;61:8781–97.
8. Food and Drug Administration. Food labeling: health claims and label statements—folate and neural tube defects. Federal Register 1996;61:8752–80.

Bull Riding-Related Brain and Spinal Cord Injuries — Louisiana, 1994–1995

Rodeos are popular sporting events in the southern and western United States, and bull riders sustain 37% of all rodeo-related injuries—more than participants in any other rodeo event (*1,2*). During 1994–1995 in Louisiana, five cases of central nervous system trauma associated with riding bulls in rodeo events were identified through the Louisiana Central Nervous System Injury Registry, a statewide, population-based surveillance system addressing brain and spinal cord injury incidence, etiology, and outcome. To further characterize these injury events, the Office of Public Health, Louisiana Department of Health and Hospitals, conducted chart reviews and follow-up telephone interviews with the five injured persons or their parents and interviewed rodeo organizations about rules, regulations, and membership. This report summarizes the investigations of these five cases and recommends use of protective equipment to reduce the risk for such injuries.

In November 1995, the Louisiana division of the National High School Rodeo Association (NHSRA) listed 67 high school students who were registered to compete as bull riders in Louisiana (F. Hinton, Louisiana division, NHSRA, personal communication, November 1995). Because other rodeo associations exist and riders frequently have membership in multiple associations, the number of bull riders cannot be accurately estimated.

Case 1. A 28-year-old man with 15 years' riding experience was thrown to the ground while riding a bull and suffered a fracture of the fifth and sixth cervical vertebrae and an incomplete* spinal cord injury. He had not been wearing any protective equipment (i.e., mouth guard, helmet, or protective vest). Emergency medical service (EMS) was not present at the event; the time between the call for an ambulance and its arrival was 45 minutes. He was hospitalized for 9 days; at discharge from acute care, he was unable to function independently in activities of daily living (e.g., eating, dressing, and walking) and was considered to have a severe disability. He had impaired movement below the level of the injury.

Case 2. A 14-year-old boy who had ridden a bull three times previously was thrown to the ground while riding; he struck his head and was then trampled by the bull. He sustained a brain stem contusion and an incomplete C2 spinal cord injury and was unconscious for 16 days. No information was available about the use of protective equipment or EMS response. He remained in a persistent vegetative state (i.e., dependent and no meaningful responsiveness) on discharge from the reporting acute-care facility 24 days after he was injured.

Case 3. A 26-year-old man with 2 years' riding experience struck his head against a bull's head while riding. He sustained a concussion with brief loss of consciousness, multiple facial bone fractures, and a trimalleolar fracture of his leg. He was wearing a protective vest. EMS was not present; the patient was transported to a hospital in a private vehicle by a family member and was in acute care for 2 days. He recovered with no reported functional limitations.

Case 4. A 15-year-old boy with 2 years' riding experience was thrown from and then trampled by a bull. He sustained an incomplete T10–T11 spinal cord injury, multiple rib

*A spinal cord injury resulting in any preserved motor or sensory function below the level of the injury.

Bull Riding-Related Injuries — Continued

fractures, a tension pneumothorax, and a splenic injury. He was not wearing protective equipment. The time between the EMS call and arrival was 10 minutes. Although at the time of discharge from acute care 17 days after he was injured he was reported to have no major deficits, he is no longer able to do heavy manual labor or compete in athletic events.

Case 5. A 17-year-old boy with 3 years' riding experience struck his head against a bull's head while riding. He sustained a brain injury and multiple nasal fractures and was unconscious for 5 days. He was not wearing protective equipment. EMS was present at the rodeo. After 40 days in acute care, he had pronounced cognitive and behavioral impairments.

Reported by: LI Gibbs, MPH, DW Lawrence, MPH, BA Reilley, Disability Prevention Program, Injury Research and Prevention Section, Office of Public Health, Louisiana Dept of Health and Hospitals. Div of Acute Care, Rehabilitation Research, and Disability Programs, National Center for Injury Prevention and Control, CDC.

Editorial Note: In competitive bull riding, the rider holds with one hand a length of braided rope wrapped around the bull's midsection. The rope is not tied in any way; only the force of the rider's grip on the rope keeps the rider on the bull. Riders must remain on the bull for 8 seconds, during which their free hand cannot touch the bull, themselves, or the rope (*3,4*). Because riders and bulls are matched by random draw, injuries are more likely to occur when a younger, less experienced rider draws a high-spirited bull. Bull-riding schools for experienced riders exist but are not widely used. For developing basic skills, riders practice on mechanical bulls, calves or young steers, and barrels suspended from ropes (K. Henry, Professional Bull Riders Association [PBR], personal communication, January 1996), although mechanical bull riding also has been associated with injuries (*5*).

The findings in this report document severe bull riding-associated brain and spinal cord injuries and permanent disability among young males. The number of such injuries may increase directly with the popularity of rodeo sports—from July 1992 to July 1995, membership in the Louisiana division of the NHSRA increased 47% (F. Hinton, NHSRA, personal communication, November 1995).

Protective head gear designed for bull riding has not been developed or recommended by rodeo organizations. Protective vests designed for bull riding are required for youth competition but not for professional competition (*3,4,6*). Use of protective head gear recommended to prevent horseback-riding–associated traumatic brain injuries (*7*) may decrease the risk for brain injury in bull riding but has not been assessed for that use. Potential barriers to using protective equipment include cost and a perception that some protective equipment detracts from the desired rugged, western appearance (K. Henry, PBR, personal communication, January 1996; T. Corfield, National Intercollegiate Rodeo Association [NIRA], personal communication, November 1995).

Timely transport by EMS providers to definitive care should decrease the severity and improve the outcome of injuries (*8*). EMS availability depends on which rodeo organization, if any, sponsors the event. For example, the Professional Rodeo Cowboys Association requires the onsite presence of an emergency medical technician and an ambulance; if the ambulance leaves to transport an injured rodeo participant, the rodeo is to be suspended until another ambulance arrives (*4*). Rodeos sponsored by college and high school associations require the presence at all times of an

Bull Riding-Related Injuries — Continued

emergency medical technician with a suitable conveyance (*3* ; T. Corfield, NIRA, personal communication, November 1995). At least three of the five injuries described in this report occurred at nonsanctioned rodeos.

The cases described in this report indicate the need for assessing the effectiveness of existing equipment, recommendations for its use in bull riding, and the need for new equipment; graduated competition; and matching the bulls with the skill levels of riders. To reduce the impact of injuries, adequate emergency medical care and transportation should be required for all rodeo events. The Louisiana Office of Public Health is working with the Louisiana Sports Medicine and Safety Advisory Committee (a group initially formed in 1990 to address spinal cord injuries among high school football players), the Tulane Institute of Sports Medicine, the Louisiana Sports Medicine Alliance, and the Louisiana High School Rodeo Association to increase participant awareness of the risk for injury related to bull riding and to develop prevention strategies.

References

1. Justin Sportsmedicine Program. Ten year injury report. Grapevine, Texas: Justin Sportsmedicine Program, 1995:1–9.
2. Griffin R, Peterson KD, Halseth JR, Reynolds B. Injuries in professional rodeo: an update. Physician and Sportsmedicine 1987;15:105–15.
3. National High School Rodeo Association. Rules, constitution and by-laws, 1995–1996. Denver, Colorado: National High School Rodeo Association, 1995:72–5.
4. Professional Rodeo Cowboys Association. Rulebook. Colorado Springs, Colorado: Professional Rodeo Cowboys Association, 1995:R10.6.1–R10.6.7.
5. McConnell RY, Rush GA. Mechanical bull syndrome. South Med J 1982;75:681–6.
6. National Little Britches Rodeo Association. Official rule book, 1995–1996. Colorado Springs, Colorado: National Little Britches Rodeo Association, 1995:58–9.
7. Anonymous. American Academy of Pediatrics Committee on Sports Medicine and Fitness: horseback-riding and head injuries. Pediatrics 1992;89:512.
8. McSwain NE Jr. Emergency medical services. In: McSwain NE Jr, Kerstein MD. Evaluation and management of trauma. Norwalk, Connecticut: Appleton-Century-Crofts, 1987:43–53.

Human Ehrlichiosis — Maryland, 1994

Ehrlichiosis is an emerging tickborne infectious disease caused by obligate intracellular, gram-negative rickettsia that infect leukocytes. Human monocytic ehrlichiosis (HME) is caused by *Ehrlichia chaffeensis* and is believed to be transmitted by *Amblyomma americanum* (the Lone Star tick). Most HME cases have been reported in southeastern and south-central states. During May–July 1994, five cases of serologically confirmed HME were identified among residents of Maryland. All five persons lived near the Chesapeake Bay and had antecedent histories of tick exposure. This report summarizes the clinical and epidemiologic features of these cases and the results of serologic testing at CDC of specimens from Maryland residents with suspected tickborne infection.

Case 1. On May 17, 1994, a 35-year-old man had onset of fever, headache, malaise, fatigue, myalgia, and back pain. His illness progressed to include anorexia, nausea, vomiting, diarrhea, and a nonproductive cough. On May 22, he was admitted to a hospital for evaluation with a white blood cell count (WBC) of 7.2 X 10^6/L (with

Human Ehrlichiosis — Continued

63% neutrophils and 20% band forms) and a temperature of 100.3 F (37.9 C), and rales were noted in the right lung base. Other laboratory abnormalities included thrombocytopenia (platelet count: 118 X 10^6/L [normal: 150–400 X 10^6/L]) and elevated aspartate aminotransferase (AST) (87 IU/L [normal: 8–20 IU/L]) and lactate dehydrogenase (LDH) (303 IU/L [normal: 45–90 IU/L]). The patient's hospital course included persistent fever despite intravenous (IV) treatment with a third-generation cephalosporin, hypotension, and progressive confusion and somnolence. Bacterial cultures of blood, cerebrospinal fluid (CSF), and stool and serologic tests, including an antibody titer for *E. chaffeensis*, were negative. He was placed in intensive care for pharmacologic support of his blood pressure. Analysis of CSF indicated lymphocytic pleocytosis. Because he did not improve within 48 hours, the antibiotic regimen was empirically changed to IV ciprofloxacin and doxycycline, and symptoms began to resolve within 24 hours. He was discharged on May 30. A serum specimen obtained at discharge was positive for *E. chaffeensis* antibody by immunofluorescent assay (IFA) (titer of 1:4096). The patient reported a history of extensive tick exposure associated with his job as a surveyor and at his residence on a farm in Kent County.

Case 2. On June 3, 1994, a 41-year-old man had onset of fever, chills, severe headache, malaise, fatigue, myalgia, and back pain. His illness progressed during the next week, and he was evaluated as an outpatient. On June 10, he was admitted to a hospital because of continuing fever and progression of symptoms. Physical examination was normal except for a temperature of 101 F (38.3 C). Laboratory tests included a WBC of 3.4 X 10^6/L (with 12% atypical lymphocytes); AST, 268 IU/L; LDH, 517 IU/L; alkaline phosphatase (AP), 150 IU/L (normal: 20–70 IU/L); 1+ protein, ketones, and bilirubin in the urine; and CSF lymphocytic pleocytosis. An initial serologic test for *E. chaffeensis* antibodies and other infectious agents and bacterial cultures of blood were negative. Because the patient's physician was aware of case 1 and recognized clinical similarities to that case, *E. chaffeensis* infection was suspected, and he was treated with IV ciprofloxacin and doxycycline. Although the patient's fever resolved in 3 days, headache, myalgia, and lethargy persisted. He was discharged on June 16. Analysis of a serologic specimen obtained at discharge detected a titer to *E. chaffeensis* of >1:1024; a follow-up titer to *E. chaffeensis* obtained 2 months after the onset of his illness was <1:16. Diplopia attributed to a palsy of the sixth cranial nerve developed late in the course of illness but subsequently resolved. The patient reported frequent exposure to ticks in the vicinity of his residence in a small town and while hiking and biking in the neighboring woods of Kent County.

Case 3. In July 1994, a 45-year-old construction worker who lived near Annapolis and worked in Aberdeen had gradual onset of fatigue, fever, headache, myalgia, and malaise. He sought care from his physician on July 20 and received trimethoprim-sulfamethoxazole for suspected sinusitis. However, he developed nausea, vomiting, diarrhea, and jaundice, and on July 27 his physician prescribed doxycycline and obtained a serum sample for Lyme disease (LD) serology (antibody to *Borrellia burgdorferi*). On about August 1, the physician notified the patient to discontinue the doxycycline because his LD test was negative (titer <1:75). On August 8, the patient was hospitalized because of continuation and progression of his symptoms. Clinical and laboratory findings included an elevated temperature, petechial rash, leukopenia, thrombocytopenia, and modestly elevated levels of serum alanine aminotransferase (ALT) and AST. IV doxycycline and cefotaxime were initiated for treatment of the

Human Ehrlichiosis — Continued

unexplained fever and severe headache. When analysis of CSF, an abdominal ultrasound, and a computerized axial tomography of the brain were normal, the cefotaxime was discontinued. Analysis of a blood specimen obtained August 10 included an indeterminate IFA for Rocky Mountain spotted fever (RMSF) and an *E. chaffeensis* titer of 1:1024. Symptoms began to resolve within 3–4 days after initiation of IV doxycycline, and monocytic inclusion bodies were detected in a peripheral blood smear obtained August 15. The patient reported that on some days he removed 25–30 ticks from his clothes and that 2 weeks before onset of symptoms, he removed a partially engorged tick from his hip approximately 36 hours after attachment.

Case 4. On July 27, 1994, a 63-year-old woman began a camping trip to Virginia, North Carolina, South Carolina, and Tennessee. On August 6, she removed an engorged tick attached to her back, which she believed had become attached 24–48 hours earlier during a hike in the mountains of eastern Tennessee. On August 8, she had onset of a backache followed by fever, headache, myalgia, abdominal pain, fatigue, and confusion. She was admitted to a hospital in Maryland on August 15 because of progression of her symptoms. Laboratory abnormalities on admission included pancytopenia—which progressed over a 24-hour period to a WBC of 2.6 X 10^6/L, a red blood cell count of 3.5 X 10^6/L, and a platelet count of 88 X 10^6/L—and increased levels of AP (245 IU/L) and AST (201 IU/L). Atypical pneumonia and hepatitis were suspected, and IV erythromycin was initiated. IV doxycycline subsequently was added to the regimen when a consulting physician suspected RMSF or ehrlichiosis. Because of persistent abdominal pain and tenderness with mildly elevated bilirubin, ALT, and AST, an ultrasonogram of the gall bladder was performed. The wall appeared thickened, and on August 16 she underwent a cholecystectomy; complications included extensive bleeding. Analysis of a blood sample obtained August 15 was negative for ehrlichiosis and RMSF; however, an IFA titer to *E. chaffeensis* was 1:1024 in a sample obtained August 23. Administration of doxycycline was continued, and she was discharged on September 11.

Case 5. On June 20, 1994, a 38-year-old man who worked at a golf course had onset of fatigue, "a feverish feeling," myalgia, arthralgia, mild headache, and generalized weakness. On June 23, he was examined by a physician who diagnosed atrial fibrillation; neutropenia (1.2 X 10^6/L) with a lymphocytosis (59%) was detected. Digoxin was initiated for treatment of atrial fibrillation. On June 27, he was hospitalized to evaluate his persistent fever. Findings included a temperature of 104 F (40 C), headache, facial flushing, generalized mild lymphadenopathy, and enlarged erythematous tonsils. Although his WBC had increased to 4.2 X 10^6/L, his platelet count had decreased (from 153 X 10^6/L to 100 X 10^6/L), and liver enzymes were slightly elevated (AST: 70 IU/L and ALT: 72 IU/L). Treatment with gentamicin and piperacillin was initiated for fever of uncertain origin. However, because rickettsial disease infection was suspected, on June 30 treatment was changed to include ampicillin and doxycycline. His clinical condition improved markedly within 48 hours. An IFA of a serum specimen obtained June 30 indicated a titer to *E. chaffeensis* of ≥1:512, and an enzyme immunoassay for LD indicated a titer of 1:435. The patient reported removing nonengorged ticks from his body approximately 2–3 weeks before the onset of his illness.

Serologic testing. The Shore Health Laboratory in eastern Maryland saved frozen aliquots of serum specimens from 91 patients submitted for RMSF serology by physicians practicing on the eastern shore of Maryland during 1993 and 1994. CDC

Human Ehrlichiosis — Continued

performed IFAs for *Rickettsia rickettsii* and *E. chaffeensis* antibodies on these specimens. Of the 12 persons who provided both acute- and convalescent-phase specimens, one was positive for *R. rickettsii* and two for *E. chaffeensis*; of the latter two, one had at least an eightfold increase in IFA titer, and the other had titers of 1:256 and 1:512 on serum samples drawn 6 weeks apart. Of the 79 patients with one blood specimen, no samples were positive for *R. rickettsii*; however, 11 (14%) had titers to *E. chaffeensis* of ≥1:128, which is considered to be consistent with recent infection.

Reported by: LE Silvers, DVM, S Watkins, GT Strickland, MD, School of Medicine, Univ of Maryland, Baltimore; M Clothier, J Grant, MD, Kent County Health Dept, Chestertown; E Hall, DVM, L Joe, MD, Anne Arundel County Health Dept, Annapolis; MA Thompson, Queen Anne's County Health Dept, Centreville; S Sullivan, MS, Talbot County Health Dept, Easton; J Ryan, MD, Queen Anne's and Talbot county health depts; P Shanahan, MD, CG Baumann, MD, Chestertown; M Shochet, MD, Glen Burnie; G Sprouse, MD, Chester; JT Nevins, MS, H McQuay, Shore Health Laboratories, Easton; E Israel, MD, DM Dwyer, MD, State Epidemiologist, Maryland Dept of Health and Mental Hygiene. Viral and Rickettsial Zoonoses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: The findings of this investigation and results of IFAs for *E. chaffeensis* conducted by CDC on serum specimens from Maryland residents indicate that cases of HME occurred in Maryland at least as early as 1988 and that the incidence of HME may be increasing (Table 1). In addition, these findings are consistent with other reports indicating that the incidence of HME is equal to or greater than that of RMSF (*1–3*). Although no cases of human granulocytic ehrlichiosis (HGE) have been confirmed in Maryland, the clinical features of HGE are identical to those of HME (*4*), and its suspected vector, *Ixodes scapularis*, is present throughout the eastern and central part of the state. The IFAs for HME and HGE usually do not crossreact, and each test must be performed independently if ehrlichiosis is suspected in patients potentially exposed in areas where both vectors are present (*4,5*).

The cases described in this report underscore that serologic testing for ehrlichiosis often is negative during the acute phase of infection. Therefore, therapy with a tetracycline antibiotic or with chloramphenicol should be initiated based on clinical suspicion before the diagnosis is serologically confirmed (*1–3*). The responses of the cases in Maryland are consistent with previous reports (*1,2*), which indicate that IV therapy with large doses of third-generation cephalosporins—a practice often used for treating fevers of unknown origin—is not effective for treating ehrlichiosis, and

TABLE 1. Results of immunofluorescent assays for *Ehrlichia chaffeensis* antibody conducted by CDC on serum specimens, by year — Maryland, 1985–1994

Year	Negative	Positive*	Total
1985	2	0	**2**
1986	1	0	**1**
1987	0	0	**0**
1988	10	2	**12**
1989	11	1	**12**
1990	10	0	**10**
1991	10	0	**10**
1992	14	1	**15**
1993	8	1	**9**
1994	27	8†	**35**

*Titers ≥1:128.
†Includes all five cases described in this report.

Human Ehrlichiosis — Continued

treatment with doxycycline generally is associated with clinical improvement within 24–48 hours.

The cases in Maryland also reflect the spectrum of illness caused by HME. HME, HGE, and RMSF should be considered in the differential diagnosis of febrile patients with generalized illness who reside, work, or vacation in tick-endemic areas and who have histories of tick exposure (*1–3*). These tickborne infections may be associated with thrombocytopenia, elevated hepatic enzymes, and CSF pleocytosis, and should be included in the differential diagnosis of patients with suspected influenza, viral hepatitis, aseptic meningitis, and cholecystitis.

Because HME is transmitted by ticks, persons who work outdoors, participate in outdoor activities, or reside in tick-endemic areas should take precautions to reduce tick exposures. These include wearing long pants and pulling socks over the pants cuffs when walking in woods or grassy areas, using insect repellent, and carefully checking for and removing ticks found on clothing and skin.

The CDC surveillance case definition for ehrlichiosis requires a clinically compatible history with a minimum antibody titer of ≥1:64 or a fourfold or greater change in antibody titers to *E. chaffeensis* using the IFA. Serum samples from persons with clinically suspected cases should be sent to CDC through the state health department or, in Maryland, to the Shore Health Laboratory at the Easton Memorial Hospital or to the Clinical Microbiology Laboratory at the Johns Hopkins Medical Systems in Baltimore.

References

1. Fishbein DB, Kemp A, Dawson JE, Greene NR, Redus MA, Fields DH. Human ehrlichiosis: prospective active surveillance in febrile hospitalized patients. J Infect Dis 1989;160:803–9.
2. Harkess JR, Ewing SA, Crutcher JM, Kudlac J, McKee G, Istre GR. Human ehrlichiosis in Oklahoma. J Infect Dis 1989;159:576–9.
3. Eng TR, Harkess JR, Fishbein DB, et al. Epidemiologic, clinical, and laboratory findings of human ehrlichiosis in the United States, 1988. JAMA 1990;264:2251–8.
4. Walker DH, Dumler JS. Emergence of ehrlichioses as human health problems. Emerging Infectious Diseases 1996;2:18–29.
5. Dawson JE, Fishbein DB, Eng TR, Redus MA, Greene NR. Diagnosis of human ehrlichiosis with the indirect fluorescent antibody test: kinetics and specificity. J Infect Dis 1990;162:91–5.

Asthma Surveillance Programs in Public Health Departments — United States

Although asthma affects more than 14 million persons in the United States (*1,2*), there have been no nationally coordinated efforts to assist state health departments in developing asthma surveillance programs. To characterize asthma surveillance and control programs in public health departments in the United States, during March and April 1996, the Council of State and Territorial Epidemiologists and CDC conducted a survey of state and territorial epidemiologists. This report presents the results of that survey, which indicate that most states lack the funding and data necessary to develop asthma surveillance programs.

Questionnaires were sent to the 54 state and territorial epidemiologists who were asked to identify the appropriate person to respond to questions about asthma programs in the state. Responses were received from 48 states and three territories. Of the 51 respondents, 43 reported no state- or territorial-level asthma-control program.

Asthma Surveillance — Continued

Based on a priority ranking scale with five items suggesting reasons states might not have an asthma-control program, the two most important reasons included lack of funds and shortage of staff. In an open-ended response, 10 states reported that asthma was not a public health priority in their state. However, 37 (86%) of the 43 states/territories expressed an interest in starting an asthma-control program.

Potential data available for characterizing asthma included hospital discharge records (42 [82%]), emergency department visits (16 [31%]), use of public or private health-care services for asthma care (10 [20%]), first-time visitors to a health-care provider (four [8%]), and survey data about the quality of life for persons with asthma (four [8%]). Only Wisconsin maintained a surveillance system to monitor trends in asthma.

Of the 42 states/territories with hospital discharge data, 14 previously had analyzed the data for asthma morbidity. Reasons for inability to use hospital discharge data included restricted access to the data because of legislative constraints and incompatible data formats.

Although no state or territory maintains an asthma-control program, 26 state health departments have been associated with efforts to control asthma in selected communities in their state, including environmental control measures (22), public education (14), patient education (14), education of health-care providers (12), and legislation (five).

Reported by: HA Anderson, MD, WR Forrester, MPA, DM Perrotta, PhD, Council of State and Territorial Epidemiologists, Atlanta. Air Pollution and Respiratory Health Br, Div of Environmental Hazards and Health Effects, National Center for Environmental Health, CDC.

Editorial Note: During 1985–1990, the estimated medical costs of asthma care in the United States increased from $4.5 billion to $6.2 billion, and in 1985 these costs represented approximately 1% of total U.S. health-care costs (*3*). In the United States, asthma is the most common chronic disease of childhood and affects approximately 5 million children aged <18 years; asthma is the fourth leading cause of disability in children (*4*). Rates for asthma prevalence, hospitalization, and death are highest among children residing in inner cities, and important risk factors for asthma-related mortality include being poor or black (*1,5,6*).

National health objectives for the year 2000 regarding asthma prevention are to establish and monitor state-based plans to define and track sentinel respiratory diseases triggered by environmental factors, reduce hospitalizations, reduce the proportion of persons with activity limitations, and increase the proportion of persons with asthma that get formal patient education (objectives 11.16, 11.1, 17.4, and 17.14b) (*7*).

The findings in this report indicate that states lack the funding, staff, and data necessary to develop asthma surveillance programs. Although 84% of respondents reported the availability of hospital discharge data, most state and territorial health departments have not used the data because of barriers to its access such as negotiating its use with a private entity, legal barriers, or incompatible data systems. Other potential sources for obtaining state-specific data about asthma include adding state-specific questions about asthma to the Behavioral Risk Factor Surveillance System, designating asthma a performance measure in the Health Plan and Employer Data and Information Set (HEDIS), and monitoring Medicaid data over time.

Asthma Surveillance — Continued

Despite the need for state-specific data and the need to develop surveillance systems to monitor trends in asthma, approximately half of the responding health departments have been associated with efforts to reduce the impact of asthma in selected communities in their state. State and territorial health departments need to determine the local burden of asthma and should explore approaches for eliminating barriers that prevent the use of existing data. Collaboration between CDC and other federal agencies, managed-care organizations, academic institutions, and states and territories to design and implement comprehensive community-based asthma surveillance systems will better characterize the burden of asthma in the United States and will enable states to target areas where asthma-prevention programs should be implemented.

References

1. CDC. Asthma mortality and hospitalization among children and young adults—United States, 1980–1993. MMWR 1996;45:350–3.
2. Adams PF, Marano MA. Current estimates from the National Health Interview Survey, 1994. Vital Health Stat 1995;10:94.
3. Weiss KB, Gergen PJ, Hodgson TA. An economic evaluation of asthma in the United States. N Engl J Med 1992;326:862–6.
4. CDC. Disabilities among children aged ≤17 years—United States, 1991–1992. MMWR 1995;44: 609–13.
5. CDC. Asthma—United States, 1982–1992. MMWR 1995;43:952–5.
6. Weiss KB, Wagener DK. Changing patterns of asthma mortality. JAMA 1990;264:1683–7.
7. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50213.

Notice to Readers

Satellite Videoconference on HIV/AIDS Prevention for Teens

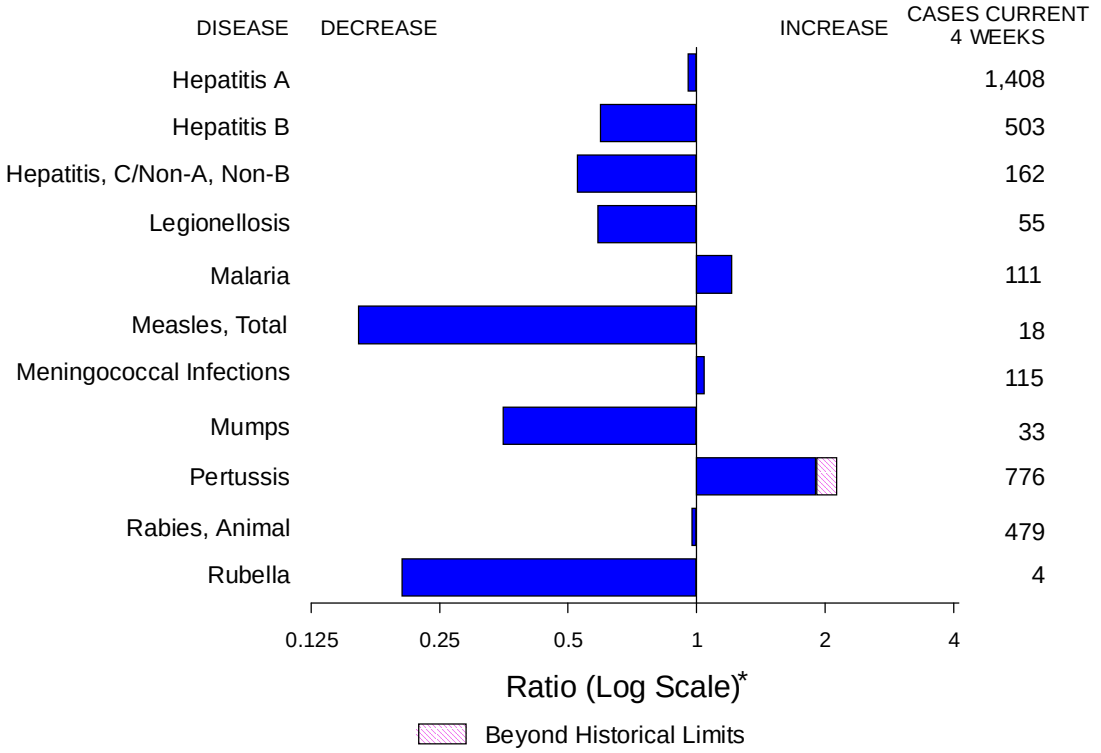
"HIV/AIDS Prevention for Teens," a satellite videoconference, will be broadcast live to sites nationwide from the Massachusetts Corporation for Educational Telecommunications (MCET) through a cooperative agreement with CDC on December 12, 1996, from 3 p.m. to 4:30 p.m. eastern standard time. The course is aimed at teachers of students in grades 6–12, health educators, community leaders, counselors, and administrators. Participants will receive an overview of HIV/AIDS education and guidance in targeting prevention strategies for youth.

Additional information, registration forms, and coordinates for down-link sites are available from MCET, telephone (800) 556-4376. The deadline to register down-link sites and participants is November 5.

Erratum: Vol. 45, No. 34

In the article "HIV Testing Among Women Aged 18–44 Years—United States, 1991 and 1993" in the third paragraph, on page 734, the first sentence should read, "From 1991 to 1993, the proportion of women aged 18–44 years who had ever been tested for HIV increased 69% (from 18.8% to 31.8%) (Table 1)."

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending September 14, 1996, 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 September 14, 1996 (37th Week)

	Cum. 1996		Cum. 1996
Anthrax	-	HIV infection, pediatric*§	195
Brucellosis	60	Plague	1
Cholera	2	Poliomyelitis, paralytic¶	-
Congenital rubella syndrome	1	Psittacosis	28
Cryptosporidiosis*	1,392	Rabies, human	1
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	487
Encephalitis: California*	44	Streptococcal toxic-shock syndrome*	13
eastern equine*	1	Syphilis, congenital**	225
St. Louis*	-	Tetanus	20
western equine*	-	Toxic-shock syndrome	99
Hansen Disease	73	Trichinosis	15
Hantavirus pulmonary syndrome*†	11	Typhoid fever	241

-: no reported cases
*Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention (NCHSTP), last update August 27, 1996.
¶ Three suspected cases of polio with onset in 1996 has been reported to date.
**Updated quarterly from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending September 14, 1996, and September 16, 1995 (37th Week)

Reporting Area	AIDS*		Chlamydia	*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB		Legionellosis	
				NETSS†	PHLIS§						
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	45,416	50,257	257,673	1,722	908	200,026	277,220	2,361	2,795	597	842
NEW ENGLAND	1,849	2,388	12,017	243	55	5,067	5,354	81	95	34	21
Maine	31	75	635	20	-	38	66	-	-	2	5
N.H.	58	75	397	28	30	80	81	7	12	2	1
Vt.	14	21	U	16	15	42	44	28	9	3	-
Mass.	873	999	4,796	121	10	1,573	1,881	40	69	18	12
R.I.	123	179	1,387	10	-	369	364	6	5	9	3
Conn.	750	1,039	4,802	48	-	2,965	2,918	-	-	N	N
MID. ATLANTIC	12,627	13,055	31,096	150	38	23,096	31,484	205	324	149	140
Upstate N.Y.	1,672	1,707	N	106	12	4,393	6,730	161	158	53	38
N.Y. City	7,052	6,555	15,097	8	-	7,762	12,543	1	1	5	4
N.J.	2,402	3,090	3,286	36	5	3,649	3,163	-	134	9	21
Pa.	1,501	1,703	12,713	N	21	7,292	9,048	43	31	82	77
E.N. CENTRAL	3,616	3,791	44,210	422	284	30,113	55,251	328	226	156	252
Ohio	810	808	13,640	108	57	10,058	17,258	25	8	67	119
Ind.	462	379	7,080	62	39	4,589	6,448	7	2	34	58
Ill.	1,579	1,521	17,415	179	84	12,555	14,099	52	67	9	22
Mich.	570	816	U	73	56	U	12,691	244	149	33	23
Wis.	195	267	6,075	N	48	2,911	4,755	-	-	13	30
W.N. CENTRAL	1,060	1,179	20,020	383	197	8,827	14,479	90	63	33	55
Minn.	189	242	2,702	163	115	U	2,176	1	2	3	2
Iowa	69	68	2,866	86	55	741	1,090	40	12	9	17
Mo.	541	559	8,767	47	-	5,865	8,159	31	17	6	13
N. Dak.	10	4	2	12	13	-	21	-	5	-	3
S. Dak.	9	14	721	13	-	102	141	-	1	2	1
Nebr.	74	80	1,801	33	3	670	855	5	14	10	12
Kans.	168	212	3,161	29	11	1,449	2,037	13	12	3	7
S. ATLANTIC	11,216	12,603	38,190	93	51	67,754	76,530	182	171	101	138
Del.	215	239	1,148	-	1	1,039	1,565	-	-	10	2
Md.	1,324	1,621	4,812	N	7	10,018	9,108	1	7	20	24
D.C.	799	740	N	-	-	3,144	3,161	-	-	8	4
Va.	795	961	7,881	N	22	6,550	7,845	10	10	13	18
W. Va.	83	83	1	N	2	365	497	9	41	1	3
N.C.	603	712	U	23	12	12,727	16,888	34	45	7	30
S.C.	586	673	-	8	7	8,038	8,668	21	16	4	28
Ga.	1,651	1,639	7,990	27	-	13,243	14,193	U	15	3	14
Fla.	5,160	5,935	16,358	25	-	12,630	14,605	107	37	35	15
E.S. CENTRAL	1,563	1,614	21,070	40	37	22,499	28,900	424	756	36	48
Ky.	272	196	4,709	8	4	2,982	3,368	21	24	3	9
Tenn.	580	665	9,309	18	30	8,198	9,810	323	730	18	23
Ala.	431	410	5,969	9	3	9,530	12,007	4	2	3	6
Miss.	280	343	U	5	-	1,789	3,715	76	U	12	10
W.S. CENTRAL	4,562	4,589	30,539	38	10	22,697	38,836	331	211	18	17
Ark.	186	209	-	11	3	2,489	3,736	7	5	2	5
La.	1,046	713	4,962	5	4	5,336	8,035	142	131	1	2
Okla.	189	206	5,463	8	1	3,497	3,887	69	34	5	4
Tex.	3,141	3,461	20,114	14	2	11,375	23,178	113	41	10	6
MOUNTAIN	1,325	1,515	11,688	140	68	5,127	6,760	418	334	29	89
Mont.	23	16	-	14	-	24	51	14	11	1	4
Idaho	29	37	1,106	27	10	80	107	92	43	-	2
Wyo.	3	12	410	8	2	25	39	134	133	3	8
Colo.	362	493	-	53	31	1,077	2,093	40	51	7	33
N. Mex.	118	123	2,705	8	-	576	754	54	39	1	4
Ariz.	370	392	4,768	N	17	2,589	2,608	53	32	13	9
Utah	127	111	1,108	19	-	213	173	22	10	2	12
Nev.	293	331	1,591	11	8	543	935	9	15	2	17
PACIFIC	7,597	9,523	48,843	213	168	14,846	19,626	302	615	41	82
Wash.	508	664	6,588	65	71	1,437	1,885	41	156	5	19
Oreg.	339	324	U	62	36	412	560	6	33	-	-
Calif.	6,594	8,292	36,799	83	52	12,446	16,278	106	394	32	58
Alaska	23	53	832	3	2	296	479	3	1	1	-
Hawaii	133	190	872	N	7	255	424	146	31	3	5
Guam	4	-	168	N	-	31	81	1	5	2	1
P.R.	1,524	1,828	N	13	U	210	426	77	170	-	-
V.I.	17	27	N	N	U	-	-	-	-	-	-
Amer. Samoa	-	-	-	N	U	-	19	-	-	-	-
C.N.M.I.	1	-	N	N	U	11	45	-	5	-	-

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

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention, last update August 27, 1996.
†National Electronic Telecommunications System for Surveillance.
§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending September 14, 1996, and September 16, 1995 (37th Week)

Reporting Area	Lyme Disease		Malaria		Meningococcal Disease		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	8,108	7,888	969	903	2,344	2,221	7,547	11,727	13,372	14,565	4,287	5,598
NEW ENGLAND	2,676	1,573	39	37	97	102	120	269	292	356	517	1,127
Maine	24	16	7	5	12	7	-	2	4	11	70	21
N.H.	29	19	2	1	3	18	1	1	9	9	48	115
Vt.	15	8	2	1	3	6	-	-	1	2	117	136
Mass.	205	94	12	11	37	36	57	46	152	200	85	339
R.I.	388	251	6	4	10	4	1	3	24	35	33	247
Conn.	2,015	1,185	10	15	32	31	61	217	102	99	164	269
MID. ATLANTIC	4,572	5,156	233	247	202	280	295	610	2,418	3,095	519	1,463
Upstate N.Y.	2,673	2,618	59	48	63	76	51	63	291	359	264	867
N.Y. City	189	342	113	135	30	38	94	264	1,239	1,768	-	-
N.J.	571	1,367	46	47	53	70	77	126	499	524	101	260
Pa.	1,139	829	15	17	56	96	73	157	389	444	154	336
E.N. CENTRAL	54	347	99	121	328	315	933	2,015	1,433	1,390	74	80
Ohio	35	23	9	9	124	90	336	629	211	195	11	10
Ind.	17	13	14	15	51	46	160	241	120	128	5	12
Ill.	2	16	35	64	87	83	313	788	766	705	18	13
Mich.	-	5	30	13	34	57	U	203	261	300	27	33
Wis.	U	290	11	20	32	39	124	154	75	62	13	12
W.N. CENTRAL	109	74	38	18	192	137	272	579	334	430	404	269
Minn.	39	5	17	3	25	23	51	34	78	105	21	14
Iowa	18	9	2	2	39	25	15	36	44	48	183	95
Mo.	22	37	9	6	79	51	175	472	144	163	16	25
N. Dak.	-	-	1	1	3	1	-	-	6	3	52	24
S. Dak.	-	-	-	1	9	5	-	-	15	15	103	73
Nebr.	2	4	3	3	17	12	12	11	13	20	3	5
Kans.	28	19	6	2	20	20	19	26	34	76	26	33
S. ATLANTIC	485	513	215	171	487	364	2,660	2,941	2,448	2,584	1,977	1,498
Del.	78	37	3	1	2	6	30	10	20	43	52	74
Md.	274	343	58	46	53	31	464	326	213	291	451	307
D.C.	3	2	7	15	10	4	109	77	98	71	9	11
Va.	32	40	32	38	44	48	300	454	201	167	417	294
W. Va.	11	21	3	2	11	8	3	9	45	54	76	88
N.C.	58	44	20	15	60	64	715	815	329	316	508	354
S.C.	4	14	9	1	46	47	293	438	254	226	69	100
Ga.	1	9	23	23	118	72	479	550	448	478	217	200
Fla.	24	3	60	30	143	84	267	262	840	938	178	70
E.S. CENTRAL	51	52	23	20	133	148	1,686	2,397	1,230	1,021	153	212
Ky.	12	12	3	2	21	36	100	130	172	218	34	22
Tenn.	17	20	11	7	16	54	594	630	297	323	56	72
Ala.	6	7	3	8	56	29	406	473	596	296	60	111
Miss.	16	13	6	3	40	29	586	1,164	165	184	3	7
W.S. CENTRAL	84	83	22	38	274	268	1,118	2,318	1,578	1,941	285	526
Ark.	21	7	-	2	30	26	121	354	127	146	15	33
La.	1	4	4	4	47	39	381	743	59	188	13	24
Okla.	13	35	-	1	27	28	139	141	134	146	23	28
Tex.	49	37	18	31	170	175	477	1,080	1,258	1,461	U	441
MOUNTAIN	6	7	44	43	132	161	109	166	416	446	108	130
Mont.	-	-	6	3	4	2	-	4	14	10	19	38
Idaho	-	-	-	1	19	8	4	-	6	11	-	1
Wyo.	2	3	4	-	3	7	2	-	5	1	23	23
Colo.	-	-	20	18	28	40	23	92	54	38	30	9
N. Mex.	1	1	2	4	22	30	1	5	55	60	5	5
Ariz.	-	-	6	7	34	47	66	32	177	224	25	37
Utah	2	1	4	5	12	13	2	4	39	19	3	11
Nev.	1	2	2	5	10	14	11	29	66	83	3	6
PACIFIC	71	83	256	208	499	446	354	432	3,223	3,302	250	293
Wash.	12	8	17	16	77	73	5	11	182	187	6	9
Oreg.	11	13	17	13	87	80	10	18	75	84	-	1
Calif.	47	62	212	167	326	283	338	402	2,793	2,850	236	276
Alaska	-	-	3	2	6	6	-	1	48	52	8	7
Hawaii	1	-	7	10	3	4	1	-	125	129	-	-
Guam	-	-	-	1	1	2	3	8	35	83	-	-
P.R.	-	-	-	1	5	18	97	200	63	120	32	35
V.I.	-	-	-	2	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	3	-	-
C.N.M.I.	-	-	-	1	-	-	1	5	-	30	-	-

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending September 14, 1996, and September 16, 1995 (37th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (viral), by type				Measles (Rubeola)			
			A		B		Indigenous		Imported†	
	Cum. 1996*	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	1996	Cum. 1996	1996	Cum. 1996
UNITED STATES	808	837	18,744	20,405	6,639	7,045	-	397	3	39
NEW ENGLAND	22	32	255	196	140	171	-	10	-	4
Maine	-	3	14	21	2	7	-	-	-	-
N.H.	8	8	12	8	10	17	-	-	-	-
Vt.	1	2	6	5	10	5	-	1	-	1
Mass.	11	10	134	80	44	64	-	8	-	3
R.I.	2	3	13	25	9	8	-	-	-	-
Conn.	-	6	76	57	65	70	-	1	-	-
MID. ATLANTIC	131	120	1,131	1,248	963	1,000	-	23	-	5
Upstate N.Y.	41	33	309	296	248	272	-	-	-	-
N.Y. City	25	28	399	615	425	315	-	9	-	3
N.J.	40	14	245	173	184	260	-	3	-	-
Pa.	25	45	178	164	106	153	-	11	-	2
E.N. CENTRAL	126	144	1,597	2,344	705	796	-	5	3	7
Ohio	77	73	583	1,309	95	82	-	2	3	3
Ind.	7	18	232	128	120	150	-	-	-	-
Ill.	30	35	352	484	173	207	-	2	-	1
Mich.	7	16	311	266	270	301	-	-	-	3
Wis.	5	2	119	157	47	56	-	1	-	-
W.N. CENTRAL	41	62	1,639	1,405	323	465	-	21	-	2
Minn.	25	34	94	141	41	43	-	16	-	2
Iowa	5	3	265	63	66	34	-	-	-	-
Mo.	7	18	762	1,008	153	325	-	4	-	-
N. Dak.	-	-	80	22	2	4	-	-	-	-
S. Dak.	1	1	41	37	4	2	-	-	-	-
Nebr.	1	3	159	38	31	23	-	-	-	-
Kans.	2	3	238	96	26	34	-	1	-	-
S. ATLANTIC	185	166	900	796	1,042	894	-	6	-	9
Del.	2	-	12	9	7	6	-	1	-	-
Md.	47	55	155	155	217	183	-	2	-	2
D.C.	5	-	23	18	28	15	-	-	-	-
Va.	6	21	121	150	99	82	-	-	-	3
W. Va.	7	7	13	17	18	40	-	-	-	-
N.C.	22	25	102	85	253	203	-	3	-	1
S.C.	4	1	42	35	61	37	-	-	-	-
Ga.	73	52	90	51	10	62	-	-	-	2
Fla.	19	5	342	276	349	266	-	-	-	1
E.S. CENTRAL	22	8	999	1,257	594	628	-	2	-	-
Ky.	4	2	22	35	39	54	-	-	-	-
Tenn.	9	-	676	1,035	353	495	-	2	-	-
Ala.	8	5	139	64	48	79	-	-	-	-
Miss.	1	1	162	123	154	-	U	-	U	-
W.S. CENTRAL	31	53	3,882	2,880	876	948	-	26	-	2
Ark.	-	5	369	375	61	43	-	-	-	-
La.	3	1	109	84	84	152	-	-	-	-
Okla.	25	20	1,670	719	59	118	-	-	-	-
Tex.	3	27	1,734	1,702	672	635	-	26	-	2
MOUNTAIN	78	92	3,021	2,932	776	596	-	152	-	5
Mont.	-	-	89	83	9	19	-	-	-	-
Idaho	1	2	156	244	71	70	-	1	-	-
Wyo.	35	5	26	86	33	17	-	1	-	-
Colo.	11	14	330	378	98	87	-	4	-	3
N. Mex.	9	12	292	609	269	226	-	16	-	-
Ariz.	9	22	1,246	830	189	88	-	8	-	-
Utah	7	9	704	533	73	48	-	117	-	2
Nev.	6	28	178	169	34	41	-	5	-	-
PACIFIC	172	160	5,320	7,347	1,220	1,547	-	152	-	5
Wash.	2	8	346	599	66	139	-	51	-	-
Oreg.	22	22	612	1,907	50	92	-	4	-	-
Calif.	144	125	4,277	4,678	1,085	1,294	-	33	-	2
Alaska	2	1	32	32	10	10	-	63	-	-
Hawaii	2	4	53	131	9	12	-	1	-	3
Guam	-	-	2	6	-	4	U	-	U	-
P.R.	1	3	80	78	261	456	-	6	-	-
V.I.	-	-	-	6	-	14	U	-	U	-
Amer. Samoa	-	-	-	6	-	-	U	-	U	-
C.N.M.I.	10	11	1	23	5	16	U	-	U	-

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

*Of 188 cases among children aged <5 years, serotype was reported for 42 and of those, 12 were type b.

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

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending September 14, 1996, and September 16, 1995 (37th Week)

Reporting Area	Measles (Rubeola), cont'd. Total		Mumps			Pertussis			Rubella		
	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995
UNITED STATES	436	268	11	459	613	152	3,335	2,906	-	195	106
NEW ENGLAND	14	8	-	1	11	8	677	382	-	25	44
Maine	-	-	-	-	4	-	19	22	-	-	-
N.H.	-	-	-	-	1	-	66	28	-	-	1
Vt.	2	-	-	-	-	6	55	58	-	2	-
Mass.	11	2	-	1	2	-	489	259	-	20	7
R.I.	-	5	-	-	1	-	25	2	-	-	-
Conn.	1	1	-	-	3	2	23	13	-	3	36
MID. ATLANTIC	28	12	-	60	92	15	264	237	-	8	13
Upstate N.Y.	-	1	-	19	24	14	144	108	-	4	3
N.Y. City	12	5	-	14	13	1	23	35	-	2	8
N.J.	3	6	-	2	14	-	11	16	-	2	2
Pa.	13	-	-	25	41	-	86	78	-	-	-
E.N. CENTRAL	12	14	3	83	105	21	339	345	-	3	3
Ohio	5	1	3	38	32	7	166	102	-	-	-
Ind.	-	-	-	6	7	1	33	24	-	-	-
Ill.	3	2	-	18	31	12	108	67	-	1	-
Mich.	3	5	-	20	35	1	27	56	-	2	3
Wis.	1	6	-	1	-	-	5	96	-	-	-
W.N. CENTRAL	23	2	-	13	37	16	224	178	-	1	-
Minn.	18	-	-	5	2	15	172	78	-	-	-
Iowa	-	-	-	1	9	-	9	7	-	1	-
Mo.	4	1	-	4	21	1	28	46	-	-	-
N. Dak.	-	-	-	2	1	-	1	8	-	-	-
S. Dak.	-	-	-	-	-	-	4	10	-	-	-
Nebr.	-	-	-	-	4	-	6	8	-	-	-
Kans.	1	1	-	1	-	-	4	21	-	-	-
S. ATLANTIC	15	11	6	81	90	33	410	237	-	91	9
Del.	1	-	-	-	-	-	11	9	-	-	-
Md.	4	1	-	21	27	12	145	31	-	-	1
D.C.	-	-	-	-	-	-	-	5	-	1	-
Va.	3	-	-	12	19	12	55	15	-	2	-
W. Va.	-	-	-	-	-	-	2	-	-	-	-
N.C.	4	-	2	19	16	-	75	84	-	77	1
S.C.	-	-	-	5	9	3	29	20	-	1	-
Ga.	2	2	1	3	6	-	17	18	-	-	-
Fla.	1	8	3	21	13	6	76	55	-	10	7
E.S. CENTRAL	2	-	-	19	7	1	68	255	-	2	1
Ky.	-	-	-	-	-	-	26	17	-	-	-
Tenn.	2	-	-	1	-	-	17	203	-	-	1
Ala.	-	-	-	3	4	1	17	34	-	2	-
Miss.	-	-	U	15	3	U	8	1	N	N	N
W.S. CENTRAL	28	23	1	24	40	2	79	229	-	3	7
Ark.	-	2	1	2	6	2	9	31	-	-	-
La.	-	18	-	12	9	-	7	13	-	1	-
Okla.	-	-	-	-	-	-	8	22	-	-	-
Tex.	28	3	-	10	25	-	55	163	-	2	7
MOUNTAIN	157	68	-	22	26	14	310	467	-	6	4
Mont.	-	-	-	-	1	8	25	3	-	-	-
Idaho	1	-	-	-	2	1	99	88	-	2	-
Wyo.	1	-	-	-	-	-	5	1	-	-	-
Colo.	7	26	-	2	1	-	78	69	-	2	-
N. Mex.	16	31	N	N	N	2	44	79	-	-	-
Ariz.	8	10	-	1	2	-	23	153	-	1	3
Utah	119	-	-	2	11	3	14	18	-	-	1
Nev.	5	1	-	17	9	-	22	56	-	1	-
PACIFIC	157	130	1	156	205	42	964	576	-	56	25
Wash.	51	19	-	18	10	38	451	178	-	2	1
Oreg.	4	1	-	-	-	2	31	37	-	1	-
Calif.	35	108	-	113	176	-	458	319	-	50	19
Alaska	63	-	-	2	12	-	2	-	-	-	-
Hawaii	4	2	1	23	7	2	22	42	-	3	5
Guam	-	-	U	5	3	U	1	2	U	-	1
P.R.	6	3	-	1	2	-	1	1	-	-	-
V.I.	-	-	U	-	3	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 121 U.S. cities,* week ending September 14, 1996 (37th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	551	414	69	42	15	11	22
Boston, Mass.	126	91	15	15	3	2	3
Bridgeport, Conn.	36	26	7	2	-	1	1
Cambridge, Mass.	9	7	1	1	-	-	1
Fall River, Mass.	25	22	2	-	1	-	1
Hartford, Conn.	44	30	8	4	2	-	1
Lowell, Mass.	18	14	1	1	2	-	2
Lynn, Mass.	12	7	2	3	-	-	-
New Bedford, Mass.	24	20	1	2	1	-	1
New Haven, Conn.	38	23	6	4	2	3	4
Providence, R.I.	72	60	7	4	-	1	4
Somerville, Mass.	6	4	1	1	-	-	-
Springfield, Mass.	50	36	8	2	2	2	1
Waterbury, Conn.	28	27	1	-	-	-	3
Worcester, Mass.	63	47	9	3	2	2	-
MID. ATLANTIC	2,203	1,464	444	215	50	30	106
Albany, N.Y.	50	34	8	5	-	3	2
Allentown, Pa.	41	25	9	3	1	3	4
Buffalo, N.Y.	79	65	10	3	1	-	-
Camden, N.J.	35	23	5	4	3	-	3
Elizabeth, N.J.	5	2	3	-	-	-	-
Erie, Pa.§	39	33	6	-	-	-	2
Jersey City, N.J.	35	25	5	4	-	1	3
New York City, N.Y.	1,153	732	250	139	22	10	47
Newark, N.J.	58	23	16	14	3	2	1
Paterson, N.J.	19	12	7	-	-	-	-
Philadelphia, Pa.	300	201	62	22	12	3	18
Pittsburgh, Pa.§	63	43	14	4	1	1	3
Reading, Pa.	11	7	2	1	-	1	4
Rochester, N.Y.	104	84	12	4	2	2	4
Schenectady, N.Y.	18	16	1	1	-	-	2
Scranton, Pa.§	26	21	4	-	1	-	1
Syracuse, N.Y.	96	64	20	6	4	2	4
Trenton, N.J.	17	10	4	2	-	1	1
Utica, N.Y.	22	19	2	1	-	-	2
Yonkers, N.Y.	32	25	4	2	-	1	5
E.N. CENTRAL	2,046	1,365	397	169	56	57	97
Akron, Ohio	58	42	8	2	3	3	-
Canton, Ohio	34	24	8	-	1	1	2
Chicago, Ill.	391	229	89	42	12	17	15
Cincinnati, Ohio	167	122	28	12	2	3	14
Cleveland, Ohio	137	88	28	12	3	6	3
Columbus, Ohio	199	141	30	15	7	6	15
Dayton, Ohio	123	88	20	9	3	3	6
Detroit, Mich.	214	120	59	23	7	5	5
Evansville, Ind.	43	34	6	3	-	-	1
Fort Wayne, Ind.	54	35	16	1	2	-	3
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	57	38	9	7	-	3	5
Indianapolis, Ind.	136	92	26	12	3	3	3
Madison, Wis.	U	U	U	U	U	U	U
Milwaukee, Wis.	124	92	21	7	3	1	6
Peoria, Ill.	34	28	5	1	-	-	3
Rockford, Ill.	59	41	9	5	3	1	5
South Bend, Ind.	56	40	9	5	-	2	4
Toledo, Ohio	97	72	12	5	5	3	5
Youngstown, Ohio	63	39	14	8	2	-	2
W.N. CENTRAL	738	489	135	64	27	17	56
Des Moines, Iowa	70	48	15	3	1	3	6
Duluth, Minn.	29	19	6	4	-	-	4
Kansas City, Kans.	19	10	4	4	1	-	-
Kansas City, Mo.	87	58	14	5	4	-	4
Lincoln, Nebr.	38	28	8	2	-	-	3
Minneapolis, Minn.	168	118	25	15	6	4	14
Omaha, Nebr.	81	53	15	7	2	4	3
St. Louis, Mo.	129	83	27	13	5	1	16
St. Paul, Minn.	69	40	12	8	5	4	5
Wichita, Kans.	48	32	9	3	3	1	1
S. ATLANTIC	1,393	843	304	162	41	43	66
Atlanta, Ga.	151	82	37	20	6	6	2
Baltimore, Md.	289	172	51	43	13	10	19
Charlotte, N.C.	107	70	21	14	1	1	10
Jacksonville, Fla.	117	77	23	13	1	3	2
Miami, Fla.	106	64	29	10	2	1	-
Norfolk, Va.	54	34	7	4	5	4	4
Richmond, Va.	83	48	23	10	1	1	2
Savannah, Ga.	41	25	9	3	1	3	4
St. Petersburg, Fla.	56	42	9	1	-	4	2
Tampa, Fla.	183	119	40	12	7	5	16
Washington, D.C.	177	92	44	32	4	5	5
Wilmington, Del.	29	18	11	-	-	-	-
E.S. CENTRAL	640	415	143	51	20	10	43
Birmingham, Ala.	98	63	20	8	3	3	5
Chattanooga, Tenn.	41	29	9	3	-	-	2
Knoxville, Tenn.	62	41	13	4	3	1	7
Lexington, Ky.	70	40	17	10	2	1	9
Memphis, Tenn.	97	65	19	8	5	-	10
Mobile, Ala.	85	56	19	3	3	4	-
Montgomery, Ala.	32	25	5	2	-	-	3
Nashville, Tenn.	155	96	41	13	4	1	7
W.S. CENTRAL	1,475	963	288	144	44	34	81
Austin, Tex.	70	38	18	10	2	2	4
Baton Rouge, La.	33	22	3	6	-	2	3
Corpus Christi, Tex.	46	32	10	3	1	-	1
Dallas, Tex.	162	104	28	16	8	6	6
El Paso, Tex.	91	61	17	6	5	2	1
Ft. Worth, Tex.	116	71	23	13	2	7	6
Houston, Tex.	350	210	78	41	11	10	33
Little Rock, Ark.	65	44	14	6	-	1	2
New Orleans, La.	132	83	28	15	5	1	-
San Antonio, Tex.	225	158	44	15	3	3	10
Shreveport, La.	60	44	10	5	1	-	7
Tulsa, Okla.	125	96	15	8	6	-	8
MOUNTAIN	825	546	152	78	25	22	45
Albuquerque, N.M.	94	66	15	12	1	-	1
Colo. Springs, Colo.	56	37	7	8	-	4	3
Denver, Colo.	97	63	15	11	2	6	5
Las Vegas, Nev.	119	76	30	6	6	-	8
Ogden, Utah	21	15	4	1	1	-	1
Phoenix, Ariz.	184	117	32	15	12	7	12
Pueblo, Colo.	19	15	3	1	-	-	2
Salt Lake City, Utah	92	57	15	15	3	2	3
Tucson, Ariz.	143	100	31	9	-	3	10
PACIFIC	1,598	1,100	284	135	46	33	108
Berkeley, Calif.	16	11	5	-	-	-	2
Fresno, Calif.	61	40	15	2	4	-	3
Glendale, Calif.	9	5	2	2	-	-	1
Honolulu, Hawaii	62	50	8	1	1	2	11
Long Beach, Calif.	69	47	11	7	1	3	9
Los Angeles, Calif.	516	339	100	52	16	9	19
Pasadena, Calif.	31	24	1	4	1	1	4
Portland, Oreg.	144	97	31	11	5	-	7
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	141	91	23	13	6	8	17
San Francisco, Calif.	150	92	34	15	6	3	11
San Jose, Calif.	192	145	26	12	4	5	17
Santa Cruz, Calif.	24	20	2	2	-	-	1
Seattle, Wash.	127	93	19	13	2	-	-
Spokane, Wash.	56	46	7	1	-	2	6
Tacoma, Wash.	U	U	U	U	U	U	U
TOTAL	11,469¶	7,599	2,216	1,060	324	257	624

U: Unavailable -: no reported cases

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

†Pneumonia and influenza.

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

¶Total includes unknown ages.

Contributors to the Production of the *MMWR* (Weekly)

Weekly Notifiable Disease Morbidity Data and 121 Cities Mortality Data

Denise Koo, M.D., M.P.H.
Deborah A. Adams
Timothy M. Copeland
Patsy A. Hall
Carol M. Knowles
Sarah H. Landis
Myra A. Montalbano

Desktop Publishing and Graphics Support

Jolene W. Altman
Morie M. Higgins
Peter M. Jenkins

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy on Friday of each week, send an e-mail message to *lists@list.cdc.gov*. The body content should read *subscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at *http://www.cdc.gov/* or from CDC's file transfer protocol server at *ftp.cdc.gov*. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800.

Data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the following Friday. Address inquiries about the *MMWR* Series, including material to be considered for publication, to: Editor, *MMWR* Series, Mailstop C-08, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333; telephone (404) 332-4555.

☆**U.S. Government Printing Office: 1996-733-175/47027 Region IV**