CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

October 19, 2001 / Vol. 50 / No. 41

MMWR™
MORBIDITY AND MORTALITY
WEEKLY REPORT

Update: Investigation of Anthrax Associated with Intentional Exposure and Interim Public Health Guidelines, October 2001

On October 4, 2001, CDC and state and local public health authorities reported a case of inhalational anthrax in Florida (*1*). Additional cases of anthrax subsequently have been reported from Florida and New York City. This report updates the findings of these case investigations, which indicate that infections were caused by the intentional release of *Bacillus anthracis*. This report also includes interim guidelines for postexposure prophylaxis for prevention of inhalational anthrax and other information to assist epidemiologists, clinicians, and laboratorians responding to intentional anthrax exposures.

For these investigations, a confirmed case of anthrax was defined as 1) a clinically compatible case of cutaneous, inhalational, or gastrointestinal illness* that is laboratory confirmed by isolation of *B. anthracis* from an affected tissue or site or 2) other laboratory evidence of *B. anthracis* infection based on at least two supportive laboratory tests. A suspected case was defined as 1) a clinically compatible case of illness without isolation of *B. anthracis* and no alternative diagnosis, but with laboratory evidence of *B. anthracis* by one supportive laboratory test or 2) a clinically compatible case of anthrax epidemiologically linked to a confirmed environmental exposure, but without corroborative laboratory evidence of *B. anthracis* infection.

Laboratory criteria for diagnosis of anthrax consist of 1) isolation and confirmation of *B. anthracis* from a clinical specimen collected from an affected tissue or site or 2) other supportive laboratory tests, including (a) evidence of *B. anthracis* DNA by polymerase chain reaction (PCR) from specimens collected from an affected tissue or site, (b) demonstration of *B. anthracis* in a clinical specimen by immunohistochemical staining, or (c) other laboratory tests (e.g., serology) that may become validated by laboratory confirmation.

**Cutaneous* illness is characterized by a skin lesion evolving from a papule, through a vesicular stage, to a depressed black eschar; edema, erythema, or necrosis without ulceration may be present. *Inhalational* illness is characterized by a brief prodrome resembling a "nonspecific febrile" illness that rapidly progresses to a fulminant illness with signs of sepsis and/or respiratory failure, often with radiographic evidence of mediastinal widening; signs of bacterial meningitis may be present. *Gastrointestinal* illness is characterized by severe abdominal pain usually accompanied by bloody vomiting or diarrhea followed by fever and signs of septicemia.

Anthrax — Continued

Florida

On October 2, the Palm Beach County Health Department (PBCHD) and the Florida Department of Health (FDOH) were notified of a possible anthrax case in Palm Beach County. The suspected case was identified when a gram stain of cerebrospinal fluid (CSF) revealed a gram-positive bacilli. An epidemiologic investigation was initiated by FDOH, PBCHD, and the FDOH state laboratory. The state laboratory and CDC confirmed *B. anthracis* from a culture of CSF on October 4. Later the same day, FDOH and CDC epidemiologists and laboratory workers arrived in Palm Beach County to assist PBCHD with the investigation. As of October 16, two confirmed cases of inhalational anthrax have been identified.

The index patient was a 63-year-old male resident of Palm Beach County who sought medical care at a local hospital on October 2 with fever and altered mental status. Despite antibiotic therapy, his clinical condition deteriorated rapidly, and he died on October 5. An autopsy performed on October 6 confirmed the cause of death as inhalational anthrax. An investigation revealed no obvious exposures to *B. anthracis*.

On October 1, the second patient, a 73-year-old co-worker of the index patient, was admitted to a local hospital for pneumonia. On October 5, a nasal swab was obtained from the patient that yielded a positive culture for *B. anthracis*. Subsequent testing revealed positive PCR tests for *B. anthracis* in hemorrhagic pleural fluid and reactive serologic tests. The patient remains hospitalized on antibiotic therapy. Enhanced case finding and retrospective and prospective surveillance systems were initiated in Palm Beach, and surrounding counties. Environmental assessments and sampling were performed at the index patient's home, work site, and travel destinations for the 60 days preceding symptom onset. Environmental sampling revealed *B. anthracis* contamination of the work site, specifically implicating mail or package delivery. Environmental samples of other locations the patient visited, including extensive sampling of his home, were negative.

Questionnaires were administered to employees at the index patient's work site. Postexposure prophylaxis was administered, and nasal swabs were obtained from those with exposure to the work site for >1 hour since August 1. Of 1,075 nasal swabs performed, one was positive for *B. anthracis*. Environmental and co-worker testing indicated contamination of specific locations at the work site. The investigation and environmental sampling are ongoing.

New York

On October 9, the New York City Department of Health notified CDC of a person with a skin lesion consistent with cutaneous anthrax. CDC sent a team to New York City to provide epidemiologic and laboratory support to local health officials. As of October 16, two persons with confirmed cases of cutaneous anthrax have been identified. One person with confirmed anthrax was a 38-year-old woman who had handled a suspicious letter postmarked September 18 at her workplace. The letter contained a powder that subsequently was confirmed to contain *B. anthracis*. On September 25, the patient had a raised lesion on the chest, which over the next 3 days developed surrounding erythema and edema. By September 29, the patient developed malaise and headache. On October 1, a clinician examined the patient and described an approximately 5 cm long oval-shaped lesion with a raised border, small satellite vesicles, and profound edema. The lesion was nonpainful and was associated with left cervical lymphadenopathy. Serous fluid from the lesion was obtained and was negative by gram stain and culture. The

Anthrax — Continued

patient was prescribed oral ciprofloxacin. Over the next several days, the lesion developed a black eschar, and a biopsy was obtained and sent to CDC for testing. The tissue was positive by immunohistochemical staining for the cell wall antigen of *B. anthracis*.

The other person with confirmed cutaneous anthrax was a 7-month-old infant who visited his mother's workplace on September 28. The next day, the infant had an apparently nontender, massively edematous, weeping skin lesion on his left arm; he was treated with intravenous antibiotics. Over the next several days, the lesion became ulcerative and developed a black eschar; clinicians presumptively attributed the lesion to a spider bite. The infant's clinical course was complicated by hemolytic anemia and thrombocytopenia, requiring intensive care. The diagnosis of cutaneous anthrax was first considered on October 12 after the announcement of the other confirmed anthrax case in New York City. A serum specimen collected on October 2 was positive for *B. anthracis* by PCR testing at CDC; a skin biopsy obtained on October 13 was positive by immunohistochemical staining at CDC for the cell wall antigen of *B. anthracis.* No suspicious letter with powder was identified at the mother's workplace. Both patients were treated with ciprofloxacin and are clinically improving.

B. anthracis grew from swabs (two nasal and one facial skin swab) from three other persons, suggesting exposure to anthrax. One of the exposures was in a law enforcement officer who brought the letter containing *B. anthracis* from the index patient's workplace to the receiving laboratory. The other two exposures were in technicians who had processed the letter in the laboratory. Environmental sampling in both workplaces is ongoing and investigations of other exposed persons continue.

Reported by: L Bush, MD, Atlantis; J Malecki, MD, Palm Beach County Health Dept, Palm Beach; S Wiersma, MD, State Epidemiologist, Florida Dept of Health. K Cahill, MD, R Fried, MD; M Grossman, MD, Columbia Presbyterian Medical Center; W Borkowsky, MD, New York Univ Medical Center, New York, New York; New York City Dept of Health. National Center for Infectious Diseases; and EIS officers, CDC.

Editorial Note: The findings in this report indicate that four confirmed cases of anthrax have resulted from intentional delivery of *B. anthracis* spores through mailed letters or packages. These are the first confirmed cases of anthrax associated with intentional exposure in the United States and represent a new public health threat.

Anthrax is an acute infectious disease caused by the spore-forming bacterium *B. anthracis*. It occurs most frequently as an epizootic or enzootic disease of herbivores (e.g., cattle, goats, or sheep) that acquire spores from direct contact with contaminated soil. Humans usually become infected through direct contact with *B. anthracis* spores from infected animals or their products (e.g., goat hair), resulting in cutaneous anthrax (*2*) (Box 1). Inhalational and gastrointestinal are other forms of the disease in the natural setting (*4,5*). Human-to-human transmission has not been documented.

Clinical laboratorians should be alert to the presence of *Bacillus* species in patient specimens. In particular, laboratorians should suspect *B. anthracis* when the specimen is from a previously healthy patient with a rapidly progressive respiratory illness or a cutaneous ulcer. If *B. anthracis* is suspected, laboratories should immediately notify the health-care provider and local and state public health staff. For rapid identification of *B. anthracis*, state and local health departments should access the Laboratory Response Network for Bioterrorism (LRN). LRN links state and local public health laboratories with advanced capacity laboratories—including clinical, military, veterinary, agricultural, water, and food-testing laboratories. Laboratorians should contact their state public health laboratory to identify their local LRN representative.

Anthrax — Continued

BOX 1. Clinical forms of anthrax

Clinical Forms of Anthrax

The following clinical descriptions of anthrax are based on experience in adults. The clinical presentation of anthrax in infants is not well defined.

Inhalational. Inhalational anthrax begins with a brief prodrome resembling a viral respiratory illness followed by development of hypoxia and dyspnea, with radiographic evidence of mediastinal widening. Inhalational anthrax is the most lethal form of anthrax and results from inspiration of 8,000–50,000 spores of *Bacillus anthracis* (*3*). The incubation period of inhalational anthrax among humans typically ranges from 1–7 days but may be possibly up to 60 days. Host factors, dose of exposure, and chemoprophylaxis may affect the duration of the incubation period. Initial symptoms include mild fever, muscle aches, and malaise and may progress to respiratory failure and shock; meningitis frequently develops. Case-fatality estimates for inhalational anthrax are extremely high, even with all possible supportive care including appropriate antibiotics.

Cutaneous. Cutaneous anthrax is characterized by a skin lesion evolving from a papule, through a vesicular stage, to a depressed black eschar. The incubation period ranges from 1–12 days. The lesion is usually painless, but patients also may have fever, malaise, headache, and regional lymphadenopathy. The case fatality rate for cutaneous anthrax is 20% without, and <1% with, antibiotic treatment.

Gastrointestinal. Gastrointestinal anthrax is characterized by severe abdominal pain followed by fever and signs of septicemia. This form of anthrax usually follows after eating raw or undercooked contaminated meat and can have an incubation period of 1–7 days. An oropharyngeal and an abdominal form of the disease have been described. Involvement of the pharynx is usually characterized by lesions at the base of the tongue, dysphagia, fever, and regional lymphadenopathy. Lower bowel inflammation typically causes nausea, loss of appetite, and fever followed by abdominal pain, hematemesis, and bloody diarrhea. The case-fatality rate is estimated to be 25%–60%. The effect of early antibiotic treatment on the case-fatality rate is not established.

Update: Investigation of Anthrax — Continued

TABLE 1. Interim recommendations for postexposure prophylaxis for prevention of inhalational anthrax after intentional exposure to *Bacillus anthracis*

Category	Initial therapy	Duration
Adults (including pregnant women and immunocompromised persons)	Ciprofloxacin 500 mg po BID or Doxycycline 100 mg po BID	60 days
Children	Ciprofloxacin 10–15 mg/kg po Q12 hrs* or Doxycycline: >8 yrs and >45 kg: 100 mg po BID >8 yrs and ≤45 kg: 2.2 mg/kg po BID ≤8 yrs: 2.2 mg/kg po BID	60 days

*Ciprofloxacin dose should not exceed 1 gram per day in children.

Postexposure prophylaxis is indicated to prevent inhalational anthrax after a confirmed or suspected aerosol exposure. When no information is available about the antimicrobial susceptibility of the implicated strain of *B. anthracis*, initial therapy with ciprofloxacin or doxycycline is recommended for adults and children (Table 1). Use of tetracyclines and fluoroquinolones in children has adverse effects. The risks for these adverse effects must be weighed carefully against the risk for developing life-threatening disease. As soon as penicillin susceptibility of the organism has been confirmed, prophylactic therapy for children should be changed to oral amoxicillin 80 mg/kg of body mass per day divided every 8 hours (not to exceed 500 mg three times daily). *B. anthracis* is not susceptible to cephalosporins or to trimethoprim/sulfamethoxazole, and these agents should not be used for prophylaxis.

CDC is assisting other states and local areas in assessing anthrax exposures. Additional information about anthrax and the public health response is available at <http://www.bt.cdc.gov>. This information was current as of 4 p.m., eastern daylight time, October 17, 2001.

References

1. CDC. Ongoing investigation of anthrax—Florida, October 2001. MMWR 2001;50:877.
2. CDC. Human anthrax associated with an epizootic among livestock—North Dakota, 2000. MMWR 2001;50:677–80.
3. Ashford DA, Rotz LD, Perkins BA. Use of anthrax vaccine in the United States: recommendations of the Advisory Committee on Immunization Practice (ACIP). MMWR 2000;49(no. RR-15).
4. Brachman PS. Inhalational anthrax. Ann NY Acad Sci 1980;353:83–93.
5. Brachman PS, Kaufmann A. Anthrax. In: Evans AS, Brachman PS, eds. Bacterial infections of humans. New York, New York: Plenum Medical Book Company, 1998.

Recognition of Illness Associated with the Intentional Release of a Biologic Agent

On September 11, 2001, following the terrorist incidents in New York City and Washington, D.C., CDC recommended heightened surveillance for any unusual disease occurrence or increased numbers of illnesses that might be associated with the terrorist attacks. Subsequently, cases of anthrax in Florida and New York City have demonstrated

Intentional Release of a Biologic Agent — Continued

the risks associated with intentional release of biologic agents (*1*). This report provides guidance for health-care providers and public health personnel about recognizing illnesses or patterns of illness that might be associated with intentional release of biologic agents.

Health-Care Providers

Health-care providers should be alert to illness patterns and diagnostic clues that might indicate an unusual infectious disease outbreak associated with intentional release of a biologic agent and should report any clusters or findings to their local or state health department. The covert release of a biologic agent may not have an immediate impact because of the delay between exposure and illness onset, and outbreaks associated with intentional releases might closely resemble naturally occurring outbreaks. Indications of intentional release of a biologic agent include 1) an unusual temporal or geographic clustering of illness (e.g., persons who attended the same public event or gathering) or patients presenting with clinical signs and symptoms that suggest an infectious disease outbreak (e.g., ≥2 patients presenting with an unexplained febrile illness associated with sepsis, pneumonia, respiratory failure, or rash or a botulism-like syndrome with flaccid muscle paralysis, especially if occurring in otherwise healthy persons); 2) an unusual age distribution for common diseases (e.g., an increase in what appears to be a chickenpox-like illness among adult patients, but which might be smallpox); and 3) a large number of cases of acute flaccid paralysis with prominent bulbar palsies, suggestive of a release of *botulinum* toxin.

CDC defines three categories of biologic agents with potential to be used as weapons, based on ease of dissemination or transmission, potential for major public health impact (e.g., high mortality), potential for public panic and social disruption, and requirements for public health preparedness (*2*). Agents of highest concern are *Bacillus anthracis* (anthrax), *Yersinia pestis* (plague), variola major (smallpox), *Clostridium botulinum* toxin (botulism), *Francisella tularensis* (tularemia), filoviruses (Ebola hemorrhagic fever, Marburg hemorrhagic fever); and arenaviruses (Lassa [Lassa fever], Junin [Argentine hemorrhagic fever], and related viruses). The following summarizes the clinical features of these agents (*3–6*).

Anthrax. A nonspecific prodrome (i.e., fever, dyspnea, cough, and chest discomfort) follows inhalation of infectious spores. Approximately 2–4 days after initial symptoms, sometimes after a brief period of improvement, respiratory failure and hemodynamic collapse ensue. Inhalational anthrax also might include thoracic edema and a widened mediastinum on chest radiograph. Gram-positive bacilli can grow on blood culture, usually 2–3 days after onset of illness. Cutaneous anthrax follows deposition of the organism onto the skin, occurring particularly on exposed areas of the hands, arms, or face. An area of local edema becomes a pruritic macule or papule, which enlarges and ulcerates after 1–2 days. Small, 1–3 mm vesicles may surround the ulcer. A painless, depressed, black eschar usually with surrounding local edema subsequently develops. The syndrome also may include lymphangitis and painful lymphadenopathy.

Plague. Clinical features of pneumonic plague include fever, cough with muco-purulent sputum (gram-negative rods may be seen on gram stain), hemoptysis, and chest pain. A chest radiograph will show evidence of bronchopneumonia.

Botulism. Clinical features include symmetric cranial neuropathies (i.e., drooping eyelids, weakened jaw clench, and difficulty swallowing or speaking), blurred vision or diplopia, symmetric descending weakness in a proximal to distal pattern, and respiratory

Intentional Release of a Biologic Agent — Continued

dysfunction from respiratory muscle paralysis or upper airway obstruction without sensory deficits. Inhalational botulism would have a similar clinical presentation as foodborne botulism; however, the gastrointestinal symptoms that accompany foodborne botulism may be absent.

Smallpox (variola). The acute clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza, beginning with a 2–4 day nonspecific prodrome of fever and myalgias before rash onset. Several clinical features can help clinicians differentiate varicella (chickenpox) from smallpox. The rash of varicella is most prominent on the trunk and develops in successive groups of lesions over several days, resulting in lesions in various stages of development and resolution. In comparison, the vesicular/pustular rash of smallpox is typically most prominent on the face and extremities, and lesions develop at the same time.

Inhalational tularemia. Inhalation of *F. tularensis* causes an abrupt onset of an acute, nonspecific febrile illness beginning 3–5 days after exposure, with pleuropneumonitis developing in a substantial proportion of cases during subsequent days (*7*).

Hemorrhagic fever (such as would be caused by Ebola or Marburg viruses). After an incubation period of usually 5–10 days (range: 2–19 days), illness is characterized by abrupt onset of fever, myalgia, and headache. Other signs and symptoms include nausea and vomiting, abdominal pain, diarrhea, chest pain, cough, and pharyngitis. A maculopapular rash, prominent on the trunk, develops in most patients approximately 5 days after onset of illness. Bleeding manifestations, such as petechiae, ecchymoses, and hemorrhages, occur as the disease progresses (*8*).

Clinical Laboratory Personnel

Although unidentified gram-positive bacilli growing on agar may be considered as contaminants and discarded, CDC recommends that these bacilli be treated as a "finding" when they occur in a suspicious clinical setting (e.g., febrile illness in a previously healthy person). The laboratory should attempt to characterize the organism, such as motility testing, inhibition by penicillin, absence of hemolysis on sheep blood agar, and further biochemical testing or species determination.

An unusually high number of samples, particularly from the same biologic medium (e.g., blood and stool cultures), may alert laboratory personnel to an outbreak. In addition, central laboratories that receive clinical specimens from several sources should be alert to increases in demand or unusual requests for culturing (e.g., uncommon biologic specimens such as cerebrospinal fluid or pulmonary aspirates).

When collecting or handling clinical specimens, laboratory personnel should 1) use Biological Safety Level II (BSL-2) or Level III (BSL-3) facilities and practices when working with clinical samples considered potentially infectious; 2) handle all specimens in a BSL-2 laminar flow hood with protective eyewear (e.g., safety glasses or eye shields), use closed-front laboratory coats with cuffed sleeves, and stretch the gloves over the cuffed sleeves; 3) avoid any activity that places persons at risk for infectious exposure, especially activities that might create aerosols or droplet dispersal; 4) decontaminate laboratory benches after each use and dispose of supplies and equipment in proper receptacles; 5) avoid touching mucosal surfaces with their hands (gloved or ungloved), and never eat or drink in the laboratory; and 6) remove and reverse their gloves before leaving the laboratory and dispose of them in a biohazard container, and wash their hands and remove their laboratory coat.

When a laboratory is unable to identify an organism in a clinical specimen, it should be sent to a laboratory where the agent can be characterized, such as the state public health

Intentional Release of a Biologic Agent — Continued

laboratory or, in some large metropolitan areas, the local health department laboratory. Any clinical specimens suspected to contain variola (smallpox) should be reported to local and state health authorities and then transported to CDC. All variola diagnostics should be conducted at CDC laboratories. Clinical laboratories should report any clusters or findings that could indicate intentional release of a biologic agent to their state and local health departments.

Infection-Control Professionals

Heightened awareness by infection-control professionals (ICPs) facilitates recognition of the release of a biologic agent. ICPs are involved with many aspects of hospital operations and several departments and with counterparts in other hospitals. As a result, ICPs may recognize changing patterns or clusters in a hospital or in a community that might otherwise go unrecognized.

ICPs should ensure that hospitals have current telephone numbers for notification of both internal (ICPs, epidemiologists, infectious diseases specialists, administrators, and public affairs officials) and external (state and local health departments, Federal Bureau of Investigation field office, and CDC Emergency Response office) contacts and that they are distributed to the appropriate personnel (*9*). ICPs should work with clinical microbiology laboratories, on- or off-site, that receive specimens for testing from their facility to ensure that cultures from suspicious cases are evaluated appropriately.

State Health Departments

State health departments should implement plans for educating and reminding health-care providers about how to recognize unusual illnesses that might indicate intentional release of a biologic agent. Strategies for responding to potential bioterrorism include 1) providing information or reminders to health-care providers and clinical laboratories about how to report events to the appropriate public health authorities; 2) implementing a 24-hour-a-day, 7-day-a-week capacity to receive and act on any positive report of events that suggest intentional release of a biologic agent; 3) investigating immediately any report of a cluster of illnesses or other event that suggests an intentional release of a biologic agent and requesting CDC's assistance when necessary; 4) implementing a plan, including accessing the Laboratory Response Network for Bioterrorism, to collect and transport specimens and to store them appropriately before laboratory analysis; and 5) reporting immediately to CDC if the results of an investigation suggest release of a biologic agent.

Reported by: National Center for Infectious Diseases; Epidemiology Program Office; Public Health Practice Program Office; Office of the Director, CDC.

Editorial Note: Health-care providers, clinical laboratory personnel, infection control professionals, and health departments play critical and complementary roles in recognizing and responding to illnesses caused by intentional release of biologic agents. The syndrome descriptions, epidemiologic clues, and laboratory recommendations in this report provide basic guidance that can be implemented immediately to improve recognition of these events.

After the terrorist attacks of September 11, state and local health departments initiated various activities to improve surveillance and response, ranging from enhancing communications (between state and local health departments and between public health agencies and health-care providers) to conducting special surveillance projects. These special projects have included active surveillance for changes in the number of hospital

Intentional Release of a Biologic Agent — Continued

admissions, emergency department visits, and occurrence of specific syndromes. Activities in bioterrorism preparedness and emerging infections over the past few years have better positioned public health agencies to detect and respond to the intentional release of a biologic agent. Immediate review of these activities to identify the most useful and practical approaches will help refine syndrome surveillance efforts in various clinical situations.

Information about clinical diagnosis and management can be found elsewhere (*1–9*). Additional information about responding to bioterrorism is available from CDC at <http://www.bt.cdc.gov>; the U.S. Army Medical Research Institute of Infectious Diseases at <http://www.usamriid.army.mil/education/bluebook.html>; the Association for Infection Control Practitioners at <http://www.apic.org>; and the Johns Hopkins Center for Civilian Biodefense at <http://www.hopkins-biodefense.org>.

References

1. CDC. Update: investigation of anthrax associated with intentional exposure and interim public health guidelines, October 2001. MMWR 2001;50:889–93.
2. CDC. Biological and chemical terrorism: strategic plan for preparedness and response. MMWR 2000;49(no. RR-4).
3. Arnon SS, Schechter R, Inglesby TV, et al. Botulinum toxin as a biological weapon: medical and public health management. JAMA 2001;285:1059–70.
4. Inglesby TV, Dennis DT, Henderson DA, et al. Plague as a biological weapon: medical and public health management. JAMA 2000;283:2281–90.
5. Henderson DA, Inglesby TV, Bartlett JG, et al. Smallpox as a biological weapon: medical and public health management. JAMA 1999;281:2127–37.
6. Inglesby TV, Henderson DA, Bartlett JG, et al. Anthrax as a biological weapon: medical and public health management. JAMA 1999;281:1735–963.
7. Dennis DT, Inglesby TV, Henderson DA, et al. Tularemia as a biological weapon: medical and public health management. JAMA 2001;285:2763–73.
8. Peters CJ. Marburg and Ebola virus hemorrhagic fevers. In: Mandell GL, Bennett JE, Dolin R, eds. Principles and practice of infectious diseases. 5th ed. New York, New York: Churchill Livingstone 2000;2:1821–3.
9. APIC Bioterrorism Task Force and CDC Hospital Infections Program Bioterrorism Working Group. Bioterrorism readiness plan: a template for healthcare facilities. Available at <http://www.cdc.gov/ncidod/hip/Bio/bio.htm>. Accessed October 2001.

Weekly Update: West Nile Virus Activity — United States, October 10–16, 2001

The following report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET and verified by states and other jurisdictions as of October 16, 2001.

During the week of October 10–16, six human cases of WNV encephalitis were reported in Florida (five) and Maryland (one). During the same period, WNV infections were reported in 312 crows, 50 other birds, and 12 horses. A total of 23 WNV-positive mosquito pools were reported in four states (Maryland, Massachusetts, New Jersey, and Pennsylvania).

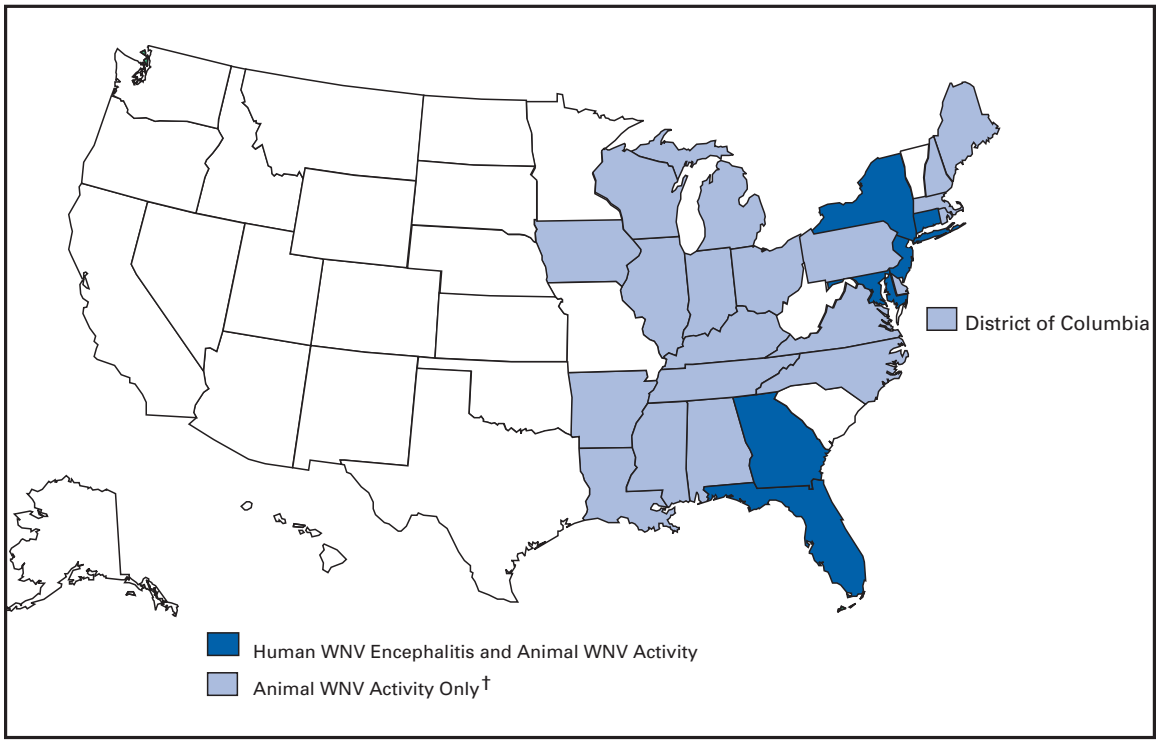
During 2001, 31 human cases of WNV encephalitis have been reported in Florida (nine), Maryland (six), New York (six), Connecticut (five), New Jersey (four), and Georgia (one); one death occurred in Georgia. Among these 31 cases, 16 (52%) were in males, the

Update: West Nile Virus — Continued

median age was 70 years (range: 37–81 years), and dates of illness onset ranged from July 14 to September 30. A total of 3,695 crows and 1,349 other birds with WNV infection were reported from 25 states and the District of Columbia (Figure 1); 125 WNV infections in other animals (all horses) were reported from 11 states (Alabama, Connecticut, Florida, Georgia, Kentucky, Louisiana, Massachusetts, Mississippi, New York, Pennsylvania, and Virginia); and 694 WNV-positive mosquito pools were reported from 14 states (Connecticut, Florida, Georgia, Illinois, Kentucky, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, and Rhode Island).

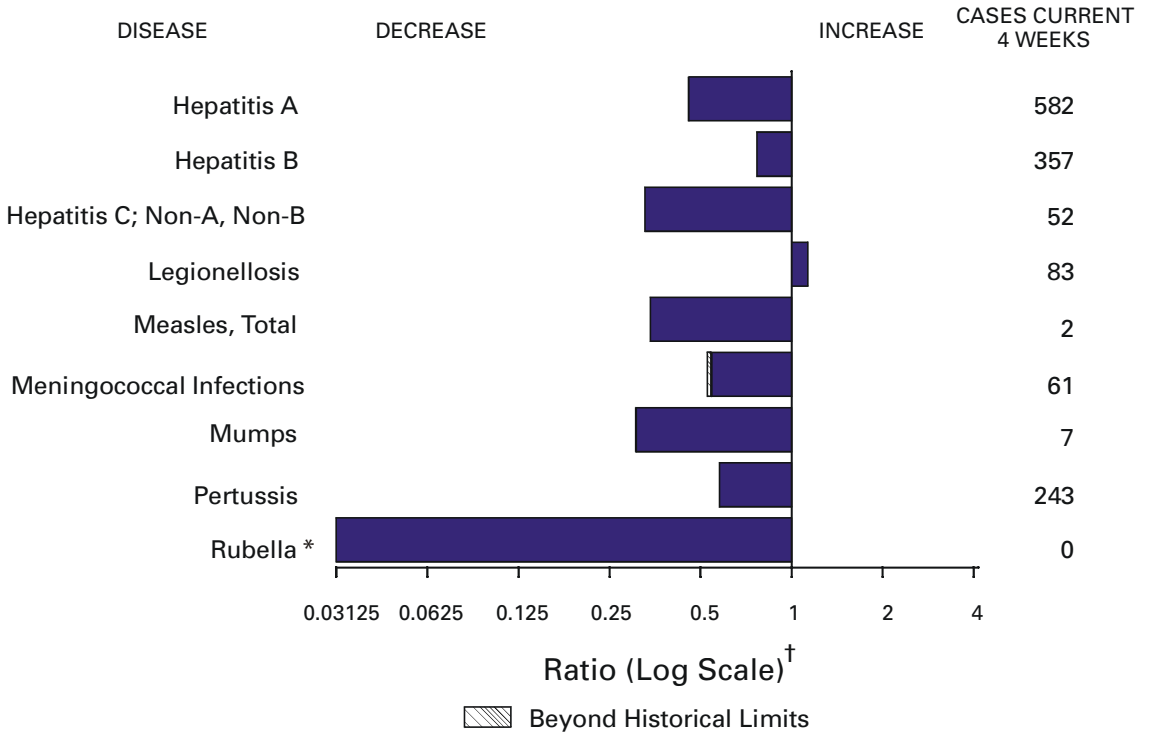
Additional information about WNV activity is available at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm> and <http://cindi.usgs.gov/hazard/event/west_nile/west_nile.html>.

FIGURE 1. Areas reporting West Nile virus (WNV) activity — United States, 2001*



* As of October 9, 2001.
† Mississippi reported WNV infection in a horse but no birds.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending October 13, 2001, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 41 of zero (0).

† 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 of provisional cases of selected notifiable diseases, United States, cumulative, week ending October 13, 2001 (41st Week)*

	Cum. 2001		Cum. 2001
Anthrax	4	Poliomyelitis, paralytic	-
Brucellosis†	65	Psittacosis†	16
Cholera	3	Q fever†	18
Cyclosporiasis†	121	Rabies, human	1
Diphtheria	2	Rocky Mountain spotted fever (RMSF)	432
Ehrlichiosis: human granulocytic (HGE)†	166	Rubella, congenital syndrome	-
human monocytic (HME)†	70	Streptococcal disease, invasive, group A	2,892
Encephalitis: California serogroup viral†	66	Streptococcal toxic-shock syndrome†	47
eastern equine†	6	Syphilis, congenital¶	166
St. Louis†	1	Tetanus	22
western equine†	-	Toxic-shock syndrome	93
Hansen disease (leprosy)†	67	Trichinosis	21
Hantavirus pulmonary syndrome†	7	Tularemia†	88
Hemolytic uremic syndrome, postdiarrheal†	112	Typhoid fever	205
HIV infection, pediatric§	153	Yellow fever	-
Plague	2		

-: No reported cases.
*Incidence data for reporting year 2001 are provisional and cumulative (year-to-date).
† Not notifiable in all states.
§ 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 25, 2001.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending October 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	AIDS		Chlamydia§		Cryptosporidiosis		*Escherichia coli* O157:H7†			
							NETSS		PHLIS	
	Cum. 2001¶	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	29,580	29,952	545,524	545,047	2,281	2,395	2,312	3,759	1,788	3,083
NEW ENGLAND	1,129	1,586	18,058	18,211	103	119	209	331	202	340
Maine	36	27	839	1,153	15	17	25	24	26	27
N.H.	31	27	1,042	862	10	20	31	31	24	31
Vt.	13	29	485	417	30	24	13	31	8	33
Mass.	602	998	7,619	7,787	39	32	109	149	105	155
R.I.	78	75	2,322	2,111	4	3	12	18	10	16
Conn.	369	430	5,751	5,881	5	23	19	78	29	78
MID. ATLANTIC	6,710	6,678	60,361	51,045	215	309	172	375	165	265
Upstate N.Y.	731	662	10,704	1,587	86	97	133	244	121	57
N.Y. City	3,385	3,609	23,412	20,896	70	146	8	21	10	15
N.J.	1,389	1,295	8,600	8,704	7	15	31	110	34	110
Pa.	1,205	1,112	17,645	19,858	52	51	N	N	-	83
E.N. CENTRAL	2,238	2,865	82,862	93,623	848	818	589	922	430	656
Ohio	430	430	17,284	24,706	145	220	140	225	132	201
Ind.	264	282	11,055	10,490	68	54	70	105	39	77
Ill.	992	1,568	21,277	26,170	1	102	130	173	128	139
Mich.	413	437	23,337	19,401	150	81	76	125	67	100
Wis.	139	148	9,909	12,856	484	361	173	294	64	139
W.N. CENTRAL	637	680	27,824	30,973	350	256	385	538	301	518
Minn.	108	129	4,958	6,375	137	55	148	132	98	165
Iowa	71	69	3,797	4,197	72	68	73	165	57	134
Mo.	312	318	10,345	10,504	34	26	42	94	68	84
N. Dak.	2	2	728	695	12	9	17	15	29	18
S. Dak.	22	7	1,389	1,440	6	15	37	51	40	57
Nebr.	52	53	2,175	2,962	88	74	51	56	-	45
Kans.	70	102	4,432	4,800	1	9	17	25	9	15
S. ATLANTIC	9,497	8,257	103,994	103,012	265	372	187	307	120	254
Del.	203	156	2,041	2,279	6	5	4	2	6	1
Md.	1,506	1,056	8,880	11,208	32	9	22	29	1	1
D.C.	644	569	2,372	2,540	10	13	-	1	U	U
Va.	723	556	14,233	12,214	22	15	46	57	36	55
W. Va.	61	46	1,837	1,691	2	3	10	14	8	11
N.C.	726	505	16,445	17,704	24	21	41	75	28	65
S.C.	577	639	8,986	7,562	-	-	8	21	11	16
Ga.	1,031	991	21,691	21,634	100	134	24	35	15	36
Fla.	4,026	3,739	27,509	26,180	69	172	32	73	15	69
E.S. CENTRAL	1,423	1,507	38,106	39,948	39	43	116	113	95	97
Ky.	278	159	7,007	6,283	4	5	57	38	46	31
Tenn.	456	635	11,564	11,372	12	10	36	48	36	47
Ala.	347	395	10,404	12,454	13	15	16	7	6	9
Miss.	342	318	9,131	9,839	10	13	7	20	7	10
W.S. CENTRAL	3,141	3,005	82,225	82,679	31	140	70	210	64	260
Ark.	159	149	5,753	5,312	6	10	11	54	-	37
La.	665	493	13,644	14,511	7	10	3	13	25	44
Okla.	186	259	8,132	7,125	11	15	25	17	24	15
Tex.	2,131	2,104	54,696	55,731	7	105	31	126	15	164
MOUNTAIN	1,073	1,105	31,678	30,634	177	132	233	356	118	262
Mont.	14	11	1,507	1,094	28	10	16	30	-	-
Idaho	17	19	1,440	1,447	20	13	54	60	-	33
Wyo.	3	7	642	629	6	5	5	15	1	9
Colo.	231	259	6,899	8,697	33	58	80	131	51	96
N. Mex.	103	116	4,738	3,878	21	14	11	19	9	16
Ariz.	437	348	11,130	10,136	7	10	23	42	22	34
Utah	90	108	1,513	1,656	58	18	30	47	34	64
Nev.	178	237	3,809	3,097	4	4	14	12	1	10
PACIFIC	3,732	4,269	100,416	94,922	253	206	351	607	293	431
Wash.	395	379	10,661	10,221	43	U	99	193	62	189
Oreg.	154	113	5,753	5,251	42	16	59	124	56	106
Calif.	3,112	3,669	79,029	74,661	164	190	172	250	168	122
Alaska	16	15	2,037	1,981	1	-	4	27	1	3
Hawaii	55	93	2,936	2,808	3	-	17	13	6	11
Guam	10	13	-	400	-	-	N	N	U	U
P.R.	934	1,023	1,930	U	-	-	1	6	U	U
V.I.	2	27	53	-	-	-	-	-	U	U
Amer. Samoa	-	-	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	103	U	-	U	-	U	U	U

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

* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

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

§ Chlamydia refers to genital infections caused by *C. trachomatis*.

¶ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last updated September 25, 2001.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending October 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	Gonorrhea		Hepatitis C; Non-A, Non-B		Legionellosis		Listeriosis	Lyme Disease	
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	251,083	278,456	2,616	2,502	775	848	369	10,020	13,549
NEW ENGLAND	5,190	5,131	14	24	49	48	32	3,179	4,277
Maine	90	73	-	2	8	2	-	-	-
N.H.	149	87	-	-	9	2	4	112	55
Vt.	53	53	6	4	5	5	2	14	29
Mass.	2,394	2,132	8	13	12	16	18	653	1,071
R.I.	645	501	-	5	6	8	1	413	414
Conn.	1,859	2,285	-	-	9	15	7	1,987	2,708
MID. ATLANTIC	30,196	30,253	1,311	554	157	232	57	5,039	7,076
Upstate N.Y.	6,626	5,482	50	29	53	66	25	2,731	2,992
N.Y. City	9,801	9,072	-	-	16	38	8	2	163
N.J.	5,261	5,890	1,214	489	7	20	10	927	2,297
Pa.	8,508	9,809	47	36	81	108	14	1,379	1,624
E.N. CENTRAL	44,730	55,615	142	190	202	222	49	501	729
Ohio	9,700	14,991	8	10	95	89	13	100	53
Ind.	4,773	4,939	1	-	18	30	8	20	21
Ill.	13,133	16,446	13	18	-	28	1	-	33
Mich.	13,630	13,700	120	162	58	39	20	1	22
Wis.	3,494	5,539	-	-	31	36	7	380	600
W.N. CENTRAL	11,850	13,992	558	453	45	53	15	332	278
Minn.	1,596	2,503	9	5	9	7	-	277	187
Iowa	997	967	-	1	7	13	2	28	27
Mo.	6,355	6,888	536	436	19	23	8	22	45
N. Dak.	32	57	-	-	1	-	-	-	1
S. Dak.	223	238	-	-	3	2	-	-	-
Nebr.	710	1,183	3	4	5	4	1	3	3
Kans.	1,937	2,156	10	7	1	4	4	2	15
S. ATLANTIC	64,371	72,962	94	86	165	156	61	724	965
Del.	1,212	1,350	-	2	8	8	-	49	167
Md.	4,858	7,695	15	11	31	54	11	462	563
D.C.	2,187	2,035	-	3	7	4	-	10	5
Va.	8,422	8,144	-	3	20	30	11	110	128
W. Va.	526	520	9	14	N	N	5	10	26
N.C.	13,452	14,499	18	13	7	13	4	35	42
S.C.	6,083	6,635	6	2	10	4	5	5	7
Ga.	11,882	13,986	-	3	9	6	11	-	-
Fla.	15,749	18,098	46	35	73	37	14	43	27
E.S. CENTRAL	24,639	28,722	167	376	48	29	19	48	46
Ky.	2,779	2,777	8	31	11	16	5	22	10
Tenn.	7,813	9,121	56	78	23	9	8	17	28
Ala.	8,065	9,572	3	7	12	3	6	8	5
Miss.	5,982	7,252	100	260	2	1	-	1	3
W.S. CENTRAL	40,347	43,705	165	605	5	21	17	79	72
Ark.	3,550	3,107	3	7	-	-	1	-	5
La.	9,437	10,753	78	354	2	7	-	1	7
Okla.	3,739	3,150	3	7	3	2	2	-	-
Tex.	23,621	26,695	81	237	-	12	14	78	60
MOUNTAIN	7,910	8,300	56	62	45	33	29	11	10
Mont.	84	38	1	4	-	1	-	-	-
Idaho	61	65	2	3	3	5	1	6	2
Wyo.	64	40	6	2	1	-	1	1	3
Colo.	2,332	2,516	17	12	13	11	7	1	-
N. Mex.	799	854	11	13	2	1	6	-	-
Ariz.	3,034	3,418	9	16	18	7	6	-	-
Utah	120	167	3	-	5	8	2	1	2
Nev.	1,416	1,202	7	12	3	-	6	2	3
PACIFIC	21,850	19,776	109	152	59	54	90	107	96
Wash.	2,374	1,808	19	26	7	15	7	8	7
Oreg.	902	745	12	24	N	N	8	7	9
Calif.	17,789	16,576	78	100	48	38	69	90	78
Alaska	325	278	-	-	-	-	-	2	2
Hawaii	460	369	-	2	4	1	6	N	N
Guam	-	43	-	3	-	-	-	-	-
P.R.	461	408	1	1	2	1	-	N	N
V.I.	6	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	-	U	U
C.N.M.I.	10	U	-	U	-	U	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending October 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	Malaria		Rabies, Animal		Salmonellosis†			
					NETSS		PHLIS	
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	894	1,172	5,393	5,683	28,425	30,983	22,957	26,461
NEW ENGLAND	62	63	592	660	1,977	1,839	1,912	1,878
Maine	4	6	55	106	153	107	137	88
N.H.	2	1	20	19	150	117	136	121
Vt.	1	2	55	50	65	98	63	94
Mass.	26	29	214	221	1,110	1,060	1,042	1,065
R.I.	7	8	53	46	113	117	147	130
Conn.	22	17	195	218	386	340	387	380
MID. ATLANTIC	217	312	1,000	1,036	3,371	4,024	3,212	4,344
Upstate N.Y.	55	59	641	657	977	979	1,043	1,070
N.Y. City	105	180	24	11	803	999	1,091	1,083
N.J.	25	41	161	156	651	981	657	848
Pa.	32	32	174	212	940	1,065	421	1,343
E.N. CENTRAL	88	118	118	144	3,818	4,305	3,569	2,903
Ohio	21	16	42	47	1,091	1,146	1,061	1,189
Ind.	15	5	3	-	438	515	399	520
Ill.	1	58	24	22	956	1,290	1,049	79
Mich.	33	26	43	64	660	723	658	788
Wis.	18	13	6	11	673	631	402	327
W.N. CENTRAL	30	47	286	471	1,795	1,959	1,848	2,141
Minn.	6	13	40	73	485	445	474	573
Iowa	6	2	70	69	281	297	263	291
Mo.	11	15	38	49	503	579	744	725
N. Dak.	-	2	33	105	53	48	73	68
S. Dak.	-	1	25	85	134	82	111	90
Nebr.	2	8	4	2	125	191	-	130
Kans.	5	6	76	88	214	317	183	264
S. ATLANTIC	234	262	1,839	1,950	6,965	6,310	4,746	4,879
Del.	2	4	30	42	79	95	87	112
Md.	100	86	279	341	676	651	723	578
D.C.	13	15	-	-	68	52	U	U
Va.	43	46	373	462	1,113	808	747	768
W. Va.	1	3	118	100	103	131	107	124
N.C.	13	30	482	473	1,055	885	905	935
S.C.	6	2	97	136	676	593	595	468
Ga.	12	19	294	268	1,128	1,144	1,210	1,442
Fla.	44	57	166	128	2,067	1,951	372	452
E.S. CENTRAL	30	41	180	170	2,068	1,894	1,505	1,488
Ky.	12	17	25	19	299	312	192	219
Tenn.	11	10	96	88	510	483	633	664
Ala.	5	13	57	62	575	526	409	498
Miss.	2	1	2	1	684	573	271	107
W.S. CENTRAL	10	67	875	744	2,965	3,971	1,461	2,409
Ark.	3	3	20	20	719	583	92	472
La.	4	11	-	3	286	690	566	565
Okla.	2	8	56	50	379	322	292	248
Tex.	1	45	799	671	1,581	2,376	511	1,124
MOUNTAIN	44	40	216	238	1,738	2,224	1,418	2,113
Mont.	2	1	31	60	60	77	-	-
Idaho	3	3	28	9	115	101	4	95
Wyo.	-	-	20	50	50	52	43	47
Colo.	19	20	-	-	482	602	484	584
N. Mex.	3	-	14	19	243	194	186	179
Ariz.	7	7	108	82	489	575	503	617
Utah	3	4	14	10	179	392	175	411
Nev.	7	5	1	8	120	231	23	180
PACIFIC	179	222	287	270	3,728	4,457	3,286	4,306
Wash.	8	24	-	-	406	466	491	561
Oreg.	10	34	2	7	194	248	266	304
Calif.	151	154	248	237	2,803	3,499	2,218	3,208
Alaska	1	-	37	26	34	52	28	33
Hawaii	9	10	-	-	291	192	283	200
Guam	-	2	-	-	-	21	U	U
P.R.	3	5	73	64	455	545	U	U
V.I.	-	-	-	-	-	-	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	11	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

† Individual cases can 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 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	Shigellosis†				Syphilis (Primary & Secondary)		Tuberculosis	
	NETSS		PHLIS					
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	13,764	17,642	6,215	10,123	4,507	4,763	9,409	11,031
NEW ENGLAND	220	335	233	325	47	64	326	319
Maine	6	10	2	11	-	1	8	12
N.H.	6	5	3	8	1	1	13	16
Vt.	7	4	5	-	2	-	4	4
Mass.	169	238	162	221	26	44	185	186
R.I.	17	24	23	26	8	4	29	27
Conn.	15	54	38	59	10	14	87	74
MID. ATLANTIC	1,054	2,158	669	1,382	400	225	1,792	1,764
Upstate N.Y.	413	611	101	180	21	9	268	236
N.Y. City	279	852	319	584	212	94	906	950
N.J.	185	455	184	391	105	57	386	415
Pa.	177	240	65	227	62	65	232	163
E.N. CENTRAL	3,383	3,509	1,573	1,010	759	948	1,014	1,081
Ohio	2,378	295	1,045	251	65	63	182	227
Ind.	179	1,332	34	139	130	287	80	107
Ill.	326	1,020	288	44	229	339	487	504
Mich.	256	579	182	527	316	217	203	172
Wis.	244	283	24	49	19	42	62	71
W.N. CENTRAL	1,449	1,957	1,054	1,673	69	58	362	396
Minn.	354	650	341	733	22	15	175	124
Iowa	335	425	276	292	4	10	34	28
Mo.	268	580	170	410	20	26	109	147
N. Dak.	20	16	27	49	-	-	3	2
S. Dak.	350	6	206	4	-	-	12	14
Nebr.	63	99	-	82	5	2	29	18
Kans.	59	181	34	103	18	5	-	63
S. ATLANTIC	1,924	2,332	636	978	1,584	1,589	1,891	2,243
Del.	13	19	10	20	9	8	15	14
Md.	127	164	75	94	188	238	170	196
D.C.	48	67	U	U	43	31	51	23
Va.	264	366	124	304	86	107	191	209
W. Va.	8	4	8	3	3	3	25	23
N.C.	290	259	143	235	370	400	267	271
S.C.	221	107	112	80	195	182	146	218
Ga.	216	193	130	149	287	302	361	499
Fla.	737	1,153	34	93	403	318	665	790
E.S. CENTRAL	1,244	858	473	462	497	708	615	744
Ky.	553	352	236	74	38	65	90	95
Tenn.	78	279	84	334	264	425	221	279
Ala.	182	58	124	48	95	99	211	247
Miss.	431	169	29	6	100	119	93	123
W.S. CENTRAL	1,831	2,761	721	868	562	653	742	1,627
Ark.	474	165	155	48	27	82	119	154
La.	117	230	137	141	130	177	-	146
Okla.	52	93	17	38	55	97	111	124
Tex.	1,188	2,273	412	641	350	297	512	1,203
MOUNTAIN	762	933	547	675	194	189	377	411
Mont.	4	7	-	-	-	-	6	14
Idaho	33	43	-	25	1	1	8	7
Wyo.	3	5	1	3	1	1	3	2
Colo.	188	202	210	162	35	8	90	68
N. Mex.	109	121	69	86	18	15	23	36
Ariz.	313	379	213	261	124	159	165	165
Utah	49	67	46	72	8	1	30	38
Nev.	63	109	8	66	7	4	52	81
PACIFIC	1,897	2,799	309	2,750	395	329	2,290	2,446
Wash.	159	388	167	358	41	53	190	193
Oreg.	70	149	87	98	13	10	82	78
Calif.	1,607	2,224	-	2,264	331	265	1,862	1,981
Alaska	6	7	6	3	-	-	40	86
Hawaii	55	31	49	27	10	1	116	108
Guam	-	34	U	U	-	3	-	44
P.R.	8	29	U	U	172	127	76	119
V.I.	-	-	U	U	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	4	U	U	U	4	U	23	U

N: Not notifiable. U: Unavailable. -: No reported cases.

* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	*H. influenzae*, Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 2001§	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	2001	Cum. 2001	2001	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	1,027	985	7,943	10,327	5,087	5,534	-	49	-	42	91	71
NEW ENGLAND	71	78	492	308	77	92	-	4	-	1	5	6
Maine	2	1	10	15	5	5	-	-	-	-	-	-
N.H.	4	12	16	18	12	15	-	-	-	-	-	3
Vt.	3	7	12	8	4	6	-	1	-	-	1	3
Mass.	35	36	209	116	3	13	-	2	-	1	3	-
R.I.	3	4	46	22	22	18	-	-	-	-	-	-
Conn.	24	18	199	129	31	35	-	1	-	-	1	-
MID. ATLANTIC	152	185	755	1,198	828	933	-	4	-	11	15	21
Upstate N.Y.	58	77	205	193	111	102	-	1	-	4	5	10
N.Y. City	36	50	216	410	332	457	-	2	-	1	3	10
N.J.	38	35	159	233	169	146	U	-	U	1	1	-
Pa.	20	23	175	362	216	228	-	1	-	5	6	1
E.N. CENTRAL	139	150	834	1,349	701	575	-	-	-	10	10	7
Ohio	56	45	190	219	86	90	-	-	-	3	3	2
Ind.	43	26	90	85	41	41	-	-	-	4	4	-
Ill.	10	50	233	582	118	98	-	-	-	3	3	3
Mich.	8	9	267	392	456	313	-	-	-	-	-	2
Wis.	22	20	54	71	-	33	-	-	-	-	-	-
W.N. CENTRAL	54	61	337	582	161	235	-	4	-	-	4	1
Minn.	32	32	34	163	17	34	-	2	-	-	2	1
Iowa	-	-	30	59	21	27	-	-	-	-	-	-
Mo.	13	19	90	237	87	117	-	2	-	-	2	-
N. Dak.	7	2	3	3	1	2	-	-	-	-	-	-
S. Dak.	-	1	2	1	1	1	-	-	-	-	-	-
Nebr.	1	3	30	27	19	33	-	-	-	-	-	-
Kans.	1	4	148	92	15	21	-	-	-	-	-	-
S. ATLANTIC	300	225	1,906	1,134	1,141	963	-	4	-	1	5	3
Del.	-	-	-	12	-	13	-	-	-	-	-	-
Md.	73	65	219	167	117	104	-	2	-	1	3	-
D.C.	-	-	43	20	11	27	-	-	-	-	-	-
Va.	25	35	109	120	139	128	-	1	-	-	1	2
W. Va.	14	8	18	52	20	10	-	-	-	-	-	-
N.C.	42	20	173	117	173	188	-	-	-	-	-	-
S.C.	5	7	64	61	26	13	-	-	-	-	-	-
Ga.	68	54	728	223	295	162	-	1	-	-	1	-
Fla.	73	36	552	362	360	318	-	-	-	-	-	1
E.S. CENTRAL	63	39	316	341	357	369	-	2	-	-	2	-
Ky.	2	12	113	43	41	63	-	2	-	-	2	-
Tenn.	33	16	119	120	189	173	-	-	-	-	-	-
Ala.	26	9	68	44	73	46	-	-	-	-	-	-
Miss.	2	2	16	134	54	87	-	-	-	-	-	-
W.S. CENTRAL	37	61	1,055	1,947	492	920	-	1	-	-	1	-
Ark.	-	2	60	120	77	82	-	-	-	-	-	-
La.	3	16	55	70	32	129	-	-	-	-	-	-
Okla.	34	41	104	213	70	124	-	-	-	-	-	-
Tex.	-	2	836	1,544	313	585	-	1	-	-	1	-
MOUNTAIN	121	95	624	724	413	416	-	1	-	1	2	12
Mont.	-	1	10	6	3	6	-	-	-	-	-	-
Idaho	1	4	53	22	10	6	-	-	-	1	1	-
Wyo.	-	1	7	4	2	3	-	-	-	-	-	-
Colo.	31	23	76	166	90	74	-	-	-	-	-	2
N. Mex.	19	19	31	61	124	116	-	-	-	-	-	-
Ariz.	54	35	338	365	125	152	-	1	-	-	1	-
Utah	6	8	60	45	23	19	-	-	-	-	-	3
Nev.	10	4	49	55	36	40	U	-	U	-	-	7
PACIFIC	90	91	1,624	2,744	917	1,031	-	29	-	18	47	21
Wash.	2	5	114	239	114	86	-	13	-	2	15	3
Oreg.	17	27	67	148	78	91	-	4	-	-	4	-
Calif.	43	31	1,426	2,333	700	834	-	10	-	11	21	14
Alaska	6	6	14	11	9	9	-	-	-	-	-	1
Hawaii	22	22	3	13	16	11	-	2	-	5	7	3
Guam	-	1	-	1	-	9	U	-	U	-	-	-
P.R.	1	4	91	216	136	229	U	-	U	-	-	2
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	28	U	U	-	U	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.

* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

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

§ Of 216 cases among children aged <5 years, serotype was reported for 112, and of those, 20 were type b.

TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 13, 2001, and October 14, 2000 (41st Week)*

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000
UNITED STATES	1,708	1,764	2	171	270	44	3,620	5,329	-	20	125
NEW ENGLAND	93	109	-	-	4	-	333	1,333	-	-	12
Maine	3	8	-	-	-	-	21	35	-	-	-
N.H.	12	11	-	-	-	-	26	97	-	-	2
Vt.	5	3	-	-	-	-	27	199	-	-	-
Mass.	49	62	-	-	1	-	237	946	-	-	8
R.I.	4	9	-	-	1	-	5	16	-	-	1
Conn.	20	16	-	-	2	-	17	40	-	-	1
MID. ATLANTIC	175	195	-	19	22	4	249	543	-	5	9
Upstate N.Y.	49	56	-	3	9	4	124	266	-	1	1
N.Y. City	32	38	-	9	6	-	38	73	-	3	8
N.J.	41	37	U	3	3	U	18	30	U	1	-
Pa.	53	64	-	4	4	-	69	174	-	-	-
E.N. CENTRAL	227	313	-	16	20	1	497	608	-	3	1
Ohio	75	74	-	1	7	-	257	263	-	-	-
Ind.	35	36	-	1	1	-	67	85	-	1	-
Ill.	22	74	-	11	6	-	59	83	-	2	1
Mich.	53	93	-	3	5	1	53	73	-	-	-
Wis.	42	36	-	-	1	-	61	104	-	-	-
W.N. CENTRAL	123	124	-	7	17	2	205	444	-	3	1
Minn.	18	18	-	3	-	-	70	268	-	-	-
Iowa	24	26	-	-	7	-	19	46	-	1	-
Mo.	44	60	-	-	4	2	85	65	-	1	-
N. Dak.	6	2	-	-	1	-	4	6	-	-	-
S. Dak.	5	5	-	-	-	-	4	4	-	-	-
Nebr.	12	6	-	1	2	-	4	21	-	-	1
Kans.	14	7	-	3	3	-	19	34	-	1	-
S. ATLANTIC	322	251	2	32	39	-	191	393	-	6	73
Del.	4	1	-	-	-	-	-	8	-	1	1
Md.	37	26	-	5	9	-	30	98	-	-	-
D.C.	-	-	-	-	-	-	1	3	-	-	-
Va.	33	37	-	6	9	-	36	90	-	-	-
W. Va.	12	12	-	-	-	-	2	1	-	-	-
N.C.	60	32	-	4	5	-	58	77	-	-	64
S.C.	31	20	2	5	10	-	31	26	-	2	6
Ga.	38	41	-	7	2	-	7	35	-	-	-
Fla.	107	82	-	5	4	-	26	55	-	3	2
E.S. CENTRAL	116	119	-	6	5	2	124	99	-	-	6
Ky.	19	25	-	1	1	-	31	50	-	-	1
Tenn.	54	48	-	1	2	2	55	29	-	-	1
Ala.	30	33	-	-	2	-	34	17	-	-	4
Miss.	13	13	-	4	-	-	4	3	-	-	-
W.S. CENTRAL	186	188	-	10	28	25	365	305	-	1	8
Ark.	17	11	-	1	1	5	22	33	-	-	1
La.	58	42	-	2	5	-	2	19	-	-	1
Okla.	26	25	-	-	-	-	11	21	-	-	-
Tex.	85	110	-	7	22	20	330	232	-	1	6
MOUNTAIN	83	76	-	11	17	9	1,134	630	-	1	2
Mont.	4	4	-	1	1	-	31	35	-	-	-
Idaho	7	7	-	1	-	-	168	57	-	-	-
Wyo.	5	-	-	1	1	-	1	4	-	-	-
Colo.	29	26	-	1	-	4	224	361	-	1	1
N. Mex.	12	7	-	2	1	1	129	81	-	-	-
Ariz.	13	22	-	1	4	4	498	63	-	-	1
Utah	7	7	-	1	4	-	71	17	-	-	-
Nev.	6	3	U	3	6	U	12	12	U	-	-
PACIFIC	383	389	-	70	118	1	522	974	-	1	13
Wash.	58	44	-	1	9	1	130	322	-	-	7
Oreg.	34	53	N	N	N	-	44	99	-	-	-
Calif.	278	276	-	32	81	-	311	498	-	-	6
Alaska	2	8	-	1	8	-	6	19	-	-	-
Hawaii	11	8	-	36	20	-	31	36	-	1	-
Guam	-	-	U	-	13	U	-	3	U	-	1
P.R.	4	9	U	-	-	U	2	6	U	-	-
V.I.	-	-	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

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 are provisional and cumulative (year-to-date). Incidence data for reporting year 2000 are finalized and cumulative (year-to-date).

TABLE IV. Deaths in 122 U.S. cities,* week ending October 13, 2001 (41st Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	589	434	97	47	6	5	44
Boston, Mass.	146	110	27	7	2	-	17
Bridgeport, Conn.	54	41	7	4	-	2	2
Cambridge, Mass.	12	11	1	-	-	-	1
Fall River, Mass.	23	11	5	6	1	-	3
Hartford, Conn.	70	50	12	7	1	-	-
Lowell, Mass.	14	9	3	2	-	-	2
Lynn, Mass.	13	9	3	1	-	-	2
New Bedford, Mass.	23	22	1	-	-	-	-
New Haven, Conn.	41	26	8	6	-	1	2
Providence, R.I.	51	36	9	4	-	2	-
Somerville, Mass.	7	5	1	1	-	-	2
Springfield, Mass.	47	34	6	6	1	-	4
Waterbury, Conn.	24	22	1	-	1	-	5
Worcester, Mass.	64	48	13	3	-	-	4
MID. ATLANTIC	2,551	1,578	532	338	64	38	117
Albany, N.Y.	55	32	13	7	-	3	5
Allentown, Pa.	20	17	2	1	-	-	2
Buffalo, N.Y.	78	60	10	5	2	1	3
Camden, N.J.	36	20	11	1	3	1	4
Elizabeth, N.J.	34	22	7	5	-	-	-
Erie, Pa.§	43	31	8	4	-	-	1
Jersey City, N.J.	28	19	5	4	-	-	-
New York City, N.Y.	1,313	765	285	221	25	16	42
Newark, N.J.	73	32	22	14	3	2	4
Paterson, N.J.	32	18	6	5	1	2	-
Philadelphia, Pa.	437	269	97	48	17	6	21
Pittsburgh, Pa.§	48	31	13	2	2	-	5
Reading, Pa.	17	12	2	1	1	1	-
Rochester, N.Y.	139	105	21	8	3	2	11
Schenectady, N.Y.	25	20	4	1	-	-	5
Scranton, Pa.§	41	32	3	6	-	-	4
Syracuse, N.Y.	80	56	14	1	5	4	7
Trenton, N.J.	27	15	8	3	1	-	2
Utica, N.Y.	25	22	1	1	1	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,589	1,109	301	110	37	32	103
Akron, Ohio	48	36	10	1	-	1	5
Canton, Ohio	38	27	8	3	-	-	4
Chicago, Ill.	U	U	U	U	U	U	U
Cincinnati, Ohio	85	62	15	2	4	2	9
Cleveland, Ohio	145	92	34	11	3	5	2
Columbus, Ohio	183	119	38	17	4	5	5
Dayton, Ohio	113	90	16	3	2	2	7
Detroit, Mich.	166	92	37	25	7	5	15
Evansville, Ind.	52	38	11	3	-	-	5
Fort Wayne, Ind.	63	45	12	3	2	1	6
Gary, Ind.	18	8	6	3	-	1	1
Grand Rapids, Mich.	45	32	10	1	-	2	2
Indianapolis, Ind.	176	126	28	14	5	3	6
Lansing, Mich.	35	26	5	2	2	-	4
Milwaukee, Wis.	107	85	15	5	1	1	12
Peoria, Ill.	51	41	6	2	-	2	4
Rockford, Ill.	55	41	12	1	1	-	7
South Bend, Ind.	49	39	8	2	-	-	2
Toledo, Ohio	111	74	23	7	6	1	6
Youngstown, Ohio	49	36	7	5	-	1	1
W.N. CENTRAL	690	452	146	51	24	17	55
Des Moines, Iowa	71	46	15	8	2	-	11
Duluth, Minn.	22	14	6	1	1	-	1
Kansas City, Kans.	31	16	12	2	1	-	1
Kansas City, Mo.	86	58	16	9	2	1	12
Lincoln, Nebr.	40	32	6	1	1	-	4
Minneapolis, Minn.	149	112	25	3	4	5	9
Omaha, Nebr.	71	49	12	5	-	5	7
St. Louis, Mo.	102	44	28	14	11	5	1
St. Paul, Minn.	64	49	12	1	2	-	6
Wichita, Kans.	54	32	14	7	-	1	3
S. ATLANTIC	1,170	734	272	115	28	20	53
Atlanta, Ga.	206	119	52	26	6	3	4
Baltimore, Md.	153	97	34	13	5	4	8
Charlotte, N.C.	113	69	27	8	4	5	9
Jacksonville, Fla.	125	76	35	10	2	2	5
Miami, Fla.	61	27	22	9	1	2	4
Norfolk, Va.	50	29	11	5	2	3	1
Richmond, Va.	46	25	16	3	2	-	-
Savannah, Ga.	62	44	12	6	-	-	6
St. Petersburg, Fla.	63	49	6	6	2	-	4
Tampa, Fla.	172	120	31	17	2	1	10
Washington, D.C.	99	59	26	12	2	-	2
Wilmington, Del.	20	20	-	-	-	-	-
E.S. CENTRAL	846	573	166	59	23	22	70
Birmingham, Ala.	183	126	32	11	9	4	23
Chattanooga, Tenn.	60	40	14	4	2	-	2
Knoxville, Tenn.	105	79	17	5	1	1	5
Lexington, Ky.	66	39	18	5	1	3	4
Memphis, Tenn.	185	117	37	13	7	11	13
Mobile, Ala.	76	48	16	10	1	1	2
Montgomery, Ala.	38	32	4	2	-	-	7
Nashville, Tenn.	133	92	28	9	2	2	14
W.S. CENTRAL	1,180	755	257	112	30	26	56
Austin, Tex.	55	40	9	2	1	3	2
Baton Rouge, La.	60	35	17	4	2	2	-
Corpus Christi, Tex.	51	33	12	3	1	2	2
Dallas, Tex.	170	119	34	8	6	3	16
El Paso, Tex.	71	49	15	7	-	-	-
Ft. Worth, Tex.	102	61	27	10	4	-	5
Houston, Tex.	281	159	76	30	8	8	14
Little Rock, Ark.	61	35	13	9	2	2	-
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	189	132	30	22	2	3	12
Shreveport, La.	30	17	8	4	-	1	-
Tulsa, Okla.	110	75	16	13	4	2	5
MOUNTAIN	987	655	199	81	34	18	59
Albuquerque, N.M.	112	75	25	8	2	2	4
Boise, Idaho	25	20	2	2	-	1	2
Colo. Springs, Colo.	66	50	10	4	2	-	3
Denver, Colo.	102	66	19	10	2	5	9
Las Vegas, Nev.	200	121	49	21	7	2	11
Ogden, Utah	35	29	6	-	-	-	3
Phoenix, Ariz.	163	96	28	21	11	7	8
Pueblo, Colo.	25	18	5	2	-	-	2
Salt Lake City, Utah	122	85	23	7	6	1	5
Tucson, Ariz.	137	95	32	6	4	-	12
PACIFIC	1,390	975	265	96	32	20	101
Berkeley, Calif.	8	5	3	-	-	-	-
Fresno, Calif.	105	65	23	14	3	-	4
Glendale, Calif.	25	21	3	-	1	-	1
Honolulu, Hawaii	58	42	12	3	-	1	6
Long Beach, Calif.	63	44	15	3	-	1	10
Los Angeles, Calif.	331	241	53	24	8	5	20
Pasadena, Calif.	27	18	4	2	2	1	5
Portland, Oreg.	144	96	33	7	5	3	7
Sacramento, Calif.	159	109	32	13	3	2	13
San Diego, Calif.	179	124	36	15	3	1	18
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	U	U	U	U	U	U	U
Santa Cruz, Calif.	32	24	7	-	1	-	2
Seattle, Wash.	103	69	19	6	4	5	9
Spokane, Wash.	59	43	11	3	1	1	4
Tacoma, Wash.	97	74	14	6	1	-	2
TOTAL	10,992¶	7,265	2,235	1,009	278	198	658

U: Unavailable. -:No reported cases.

* Mortality data in this table are reported voluntarily from 122 cities in the United States, most of which have populations of ≥100,000. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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

Weekly Notifiable Disease Morbidity Data and 122 Cities Mortality Data

Samuel L. Groseclose, D.V.M., M.P.H.
Wayne S. Brathwaite

State Support Team
Robert Fagan
Jose Aponte
Gerald Jones
David Nitschke
Scott Noldy
Jim Vaughan
Carol A. Worsham

CDC Operations Team
Carol M. Knowles
Deborah A. Adams
Willie J. Anderson
Lateka M. Dammond
Patsy A. Hall
Mechele A. Hester
Felicia J. Connor
Pearl Sharp

Informatics

T. Demetri Vacalis, Ph.D.
Michele D. Renshaw Erica R. Shaver

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 *listserv@listserv.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/mmwr* or from CDC's file transfer protocol server at *ftp://ftp.cdc.gov/pub/Publications/mmwr*. 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 (888) 232-3228.

☆U.S. Government Printing Office: 2002-733-100/49017 Region IV