MMWR™
Morbidity and Mortality Weekly Report
Weekly July 19, 2002 / Vol. 51 / No. 28

Tetanus — Puerto Rico, 2002

During February–May 2002, the Puerto Rico Department of Health (PRDOH) received reports of three tetanus cases, two of which were fatal. The last reported case of tetanus in Puerto Rico had occurred in 1999. This report summarizes the investigations of these three cases, which underscore that health-care providers should ensure that all patients have been vaccinated fully against tetanus (*1,2*).

Case Reports

Case 1. On December 19, 2001, a man aged 86 years with a history of hypertension and coronary artery disease (CAD) sustained a splinter in his right hand while gardening. On December 22, the patient saw a physician for wound care. At that time, he was not treated with either a tetanus toxoid vaccine or prophylactic tetanus immune globulin (TIG). His tetanus vaccination history was not documented in the medical record; he had no history of military service.

On December 26, the patient received treatment for pharyngitis from a local physician. On December 29, he presented to an emergency department (ED) with difficulty talking, swallowing, and breathing and with chest pain and disorientation of 2 days' duration. He was admitted to a general medicine ward with a preliminary diagnosis of stroke.

On January 2, 2002, the patient had neck rigidity and respiratory failure requiring tracheotomy and mechanical ventilation and was transferred to the intensive care unit (ICU) with tetanus diagnosed. He was administered a dose of tetanus and diphtheria toxoids (Td); TIG was ordered but was unavailable. On January 11, the patient received nonspecific intravenous immune globulin (pooled plasma, 7.5 grams). His hospital course was complicated by two myocardial infarctions, congestive heart failure, a lacunar stroke, and pneumonia. He died on February 2.

Case 2. On April 18, 2002, a man aged 68 years with a history of diabetes mellitus, CAD, and mitral valve replacement sustained a puncture wound in his right foot from stepping on a rusted nail. His spouse cleaned the wound with a surface antiseptic (benzalkonium chloride). The following day, the patient sought care from a primary-care physician who administered intravenous cefazolin and prescribed oral ciprofloxacin and oxycodone. The patient requested vaccination against tetanus but was told that the vaccine was unavailable. The patient did not know if he had been vaccinated previously against tetanus; he had not served in the military.

On April 22, the patient presented to an ED complaining of difficulty swallowing, mild shortness of breath, abdominal pain, throat pain, and mandibular rigidity. On physical examination, he had trismus, risus sardonicus, muscular rigidity, and difficulty speaking. He was admitted to the ICU with diagnoses of suspected tetanus and right foot cellulitis. He was treated with metronidazole, ciprofloxacin, and midazolam by continuous intravenous infusion. On April 23, the patient had seizures and respiratory failure requiring mechanical ventilation. He also was given intramuscular TIG (500 units) and Td (0.5 cc) at that time. Despite midazolam therapy and supplemental diazepam for seizures, the patient's muscle spasms persisted. He died on April 27.

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The *MMWR* series of publications is published by the Epidemiology Program Office, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

SUGGESTED CITATION
Centers for Disease Control and Prevention. [Article Title]. MMWR 2002;51:[inclusive page numbers].

Case 3. On April 10, 2002, a man aged 76 years with a history of hypertension sustained a splinter in his right hand. On April 18, the patient experienced weakness and dysphagia, and on the following day, trismus. At that time, he was treated for otitis media but refused Td vaccination. His previous tetanus vaccination status was unknown; he had not served in the military.

On April 20, the patient presented to an ED with difficulty walking, talking, and swallowing. He did not report any wound history to the attending physician. He was treated with an intramuscular corticosteroid injection and an antihistamine. On April 21, the patient sought care at another ED. He was admitted to the ICU with diagnosed tetanus and intubated preemptively. On April 22, he received 3,000 units of TIG and was started on metronidazole. His course was complicated by methicillin-sensitive *Staphylococcus aureus* pneumonia and pseudomembranous colitis. He was released from the hospital on June 17.

Case Summary

During January 1990–April 2002, PRDOH received reports of 20 cases of tetanus (average annual incidence rate: 0.04 per 100,000 population). Of these, 18 (90%) were in men; the median age was 70 years (range: 55–86 years). Among the 11 (55%) for whom supplemental information was available, none had a definite history of previous vaccination with tetanus toxoid. Five (25%) patients had a history of diabetes mellitus. The overall case-fatality rate was 68%.

As a result of the Td shortage affecting the United States during 2000–2002, PRDOH instituted a protocol in March 2001 consistent with the modified guidelines for Td use during the shortage (*3,4*). Priority was given to persons requiring prophylaxis for wound management and to persons who had previously received fewer than 3 doses of tetanus-containing vaccine, and routine Td boosters in adolescents and adults were deferred. The shortage reduced Td use in Puerto Rico by 67% during 2000–2001 (Puerto Rico Immunization Program, unpublished data, 2002).

In response to the recent tetanus cases, PRDOH has 1) continued reminding health-care providers of the increased risk for tetanus among persons aged ≥60 years and those with no history of primary vaccination against tetanus; 2) promoted an increase in the availability of TIG for prophylactic and therapeutic use; and 3) notified physicians that the Td shortage has ended and that Td is available for routine indications (*5*).

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Editorial Note: Tetanus is a rare disease in the United States; following the introduction of vaccination with tetanus toxoid in the 1940s, the overall incidence of tetanus declined from 0.4 per 100,000 population in 1947 to 0.02 during the latter half of the 1990s. The overall case-fatality ratio declined from 91% to 11% during the same period. The majority of tetanus cases reported during 1989–1997 occurred in persons who had not completed a 3-dose primary tetanus toxoid vaccination series or for whom vaccination histories were uncertain; no tetanus deaths occurred in persons who received primary tetanus vaccination (*5–7*; CDC, unpublished data, 2002).

Adults aged ≥60 years are at greatest risk for tetanus and tetanus-related mortality (*5–7*). During 1998–2000, the average annual incidence of tetanus in persons aged ≥60 years was 0.03 with a case-fatality ratio of 31%, both more than twice that of adults aged <60 years. The increased risk for tetanus with increasing age is thought to be related to the lower prevalence of protective immunity in older age groups. Protective levels of antibodies against tetanus toxoid decline with age; by age 70 years, only 30% of the population is protected (*8*). Older persons might never have received a primary vaccination series or might not have received subsequent Td boosters. Women are significantly less likely to be protected against tetanus than men (*8*) probably, in part, because women are less likely to have received a Td booster in conjunction with military service.

The Td shortage during 2000–2002 necessitated deferral of routine Td boosters in adolescents and adults. However, booster doses given as part of wound management and administration of primary series in unvaccinated persons remained priorities (*3*). Previous reports on tetanus cases occurring in the United States during the 1980s and 1990s indicated that even during periods in which Td was in ample supply, <60% of persons for whom Td was indicated received a dose during wound management (*5–7*).

Recommendations for the use of Td and TIG for wound care depend on the nature of the wound and the patient's vaccination history. Persons who have received a primary tetanus vaccination series but who have not had a Td booster during the 10 years preceding any injury should receive a booster dose. Persons who present with wounds contaminated with dirt, feces, or saliva, deep wounds, or wounds with necrotic tissue and who have not had a booster during the preceding 5 years also should receive a dose of Td. Persons who have never received tetanus vaccination or those with unknown or uncertain vaccination histories should receive the first dose of a primary series at the time of presentation. These patients also should receive TIG (250 units injected intramuscularly at a site distant from that used for Td administration) unless the wound is superficial and clean, because a single dose of Td in the absence of previous tetanus vaccination will not induce the production of protective levels of antibody. Therapeutic TIG (3,000–6,000 units as 1 dose) should be administered as soon as possible to any patient presenting with tetanus (*9*).

The majority of cases of tetanus and virtually all tetanus-associated deaths are preventable through adequate vaccination. Because all wounds, even minor and relatively clean wounds, confer a risk for tetanus, health-care providers should review the vaccination status of all patients and administer indicated tetanus toxoid vaccine to keep their patients fully protected (*1,2*).

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Pertussis Deaths — United States, 2000

Pertussis (i.e., whooping cough) is associated typically with an inspiratory "whoop," prolonged paroxysmal cough, and posttussive vomiting; however, persons infected with *Bordetella pertussis* sometimes experience atypical symptoms, making prompt recognition difficult (*1*) and probably increasing infection transmission. All infants aged <6 months and any infants who have not yet received 3 doses of diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine are especially vulnerable to *B. pertussis* infection (*2*). This report summarizes the investigations of two pertussis deaths that occurred in 2000. Clinicians should consider pertussis as a cause of illness, especially among vulnerable infants who present with cough illness, respiratory distress, or apnea. Timely diagnosis of pertussis in caregivers and other contacts of infants could prevent infant pertussis fatalities.

Case Reports

Colorado. On January 6, 2000, a full-term, white, non-Hispanic female infant aged 3 months was evaluated by her pediatrician for rhinorrhea and cough of 7 days' duration. A test for respiratory syncytial virus (RSV) was negative, and the infant received her first vaccinations, including DTaP vaccine. On January 17, the infant returned with persistent symptoms that had progressed during the preceding 2–3 days to include paroxysmal cough, breathing difficulty, and fever. Perioral cyanosis, intercostal retractions, tachypnea, and hypoxia were noted. A chest radiograph revealed marked hyperinflation and bilateral perihilar infiltrates. The infant's mother reported a cough illness with onset 3–4 weeks before the infant's cough onset; the infant's sibling aged 3 years (who had received 4 DTaP vaccinations) also had a mild cough illness. On hospital admission that day, the infant's leukocyte count was 129,000 (normal: 5,000–20,000). Specimens of nasopharyngeal (NP) secretions were collected for *B. pertussis* culture and repeat RSV testing. A blood sample was obtained for culture, and empiric treatment for pertussis was initiated with oral azithromycin, which was later replaced with oral erythromycin. On January 18, the infant became increasingly irritable, had a temperature of 104º F (40º C), and was transferred to a tertiary medical center. Pertussis complicated by bacterial pneumonia was diagnosed presumptively and the infant was treated with intravenous erythromycin, nafcillin, and cefotaxime. NP specimens were tested by polymerase chain reaction (PCR) assay for *B. pertussis* DNA; a positive assay result was reported on January 20. Recurrent apnea was followed on January 22 by acute respiratory decompensation, requiring mechanical ventilation. Management of disseminated intravascular coagulation, hypotension, hyponatremia, and hypoalbuminemia was necessary. On January 24, the infant's antibiotic regimen was augmented empirically with ceftazidime and tobramycin, and a tracheal aspirate culture confirmed *Pseudomonas aeruginosa* infection later that day. An echocardiogram revealed severe pulmonary hypertension and right ventricular dilatation. The infant had multiple cardiac arrests, including one during initiation of extracorporeal membrane oxygenation (ECMO). On January 25, a cranial ultrasound revealed severe frontal hemorrhage; support was withdrawn, and the infant died. An autopsy confirmed that the infant died because of *B. pertussis* infection, superimposed *P. aeruginosa* sepsis, and severe necrotizing bronchopneumonia. Microscopic examination of the lung revealed necrosis, hemorrhage, and gram-negative bacilli. *B. pertussis* was isolated from nasopharyngeal secretions collected on January 17. A blood culture collected on January 23 and postmortem cultures from multiple sites yielded *P. aeruginosa.* No other pathogens were identified.

Texas. On November 10, 2000, a full-term, white, Hispanic female infant aged 3 weeks was evaluated by her pediatrician for a 3-day history of cough, posttussive emesis, and poor feeding; supportive care was recommended. That evening, the infant had worsening cough and posttussive emesis and was taken to the emergency department of hospital A. A chest radiograph revealed a right upper lobe infiltrate; the infant's leukocyte count was 8,800. A blood sample was obtained for culture. Intramuscular ceftriaxone was administered, and the patient was discharged. The next morning, because of respiratory distress and hypoxia, the infant was admitted to hospital B. A second chest radiograph revealed a right-sided infiltrate. Ampicillin, gentamicin, and vancomycin were administered empirically. The infant was intubated and transported to a tertiary care center. On her arrival at hospital C, a third chest radiograph revealed extensive bilateral infiltrates; the infant's leukocyte count was 112,000. Specimens of NP secretions were obtained to test by PCR assay for *B. pertussis* DNA. Ampicillin and cefotaxime were administered empirically. Following transfer, the maternal grandmother reported a 1-month history of severe cough; both parents reported 2 weeks of severe cough illness with posttussive emesis. The infant's cardiopulmonary status did not improve with either conventional or high-frequency oscillatory ventilation and was complicated by a right-sided pneumothorax and hypotension. An echocardiogram suggested pulmonary hypertension. Having failed to respond to inhaled nitric oxide therapy, the infant was placed on ECMO with transient stabilization on November 12. Because

pathogens including *B. pertussis* and herpes simplex viruses were suspected, erythromycin, acyclovir, and clindamycin were administered empirically. Later that day, the infant had a cardiac arrest and died. An autopsy was not performed. After the infant's death, *B. pertussis* DNA was detected by PCR, and herpes simplex virus was detected by direct fluorescent antibody testing. Blood cultures from hospitals A and C, and viral cultures from hospital C, did not identify other pathogens.

United States

A total of 17 deaths of persons having pertussis symptom onset in 2000 were reported to CDC by 12 states. All deaths occurred among infants born in the United States, with onset of pertussis symptoms at age <4 months. Nine (53%) deaths occurred among males. Of the 17 deceased infants, 14 (82%) were white, one (6%) was black, and one (6%) was American Indian/Alaska Native; race was not reported for one (6%). Data on ethnicity were reported for 15 (88%) infants; seven (41%) of the 17 deceased infants were Hispanic.

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Editorial Note: Despite record high vaccination coverage levels with 3 doses of DTaP among U.S. children aged 19–35 months (*3*), pertussis continues to cause fatal illness among vulnerable infants. During 1980–1998, the average annual incidence of reported pertussis cases and deaths among U.S. infants increased 50% (*4*). The increased morbidity and mortality occurred primarily among infants aged <4 months, who were too young to have received the recommended three DTaP vaccinations at ages 2, 4, and 6 months (*1,2,4*). During 1990–1999, a disproportionately high number of pertussis deaths occurred among Hispanic infants; of 89 infants who died from pertussis for whom data on ethnicity were available, 31 (35%) were Hispanic (*5*; CDC, unpublished data, 2002). Academic investigators and public health agencies, including CDC, are initiating studies to identify the risk factors for severe and fatal pertussis.

Infants with severe pertussis often are suspected initially of having systemic infection and are treated with broad-spectrum antibiotics. The two cases described in this report illustrate that pertussis can be fatal despite broad-spectrum antimicrobial therapy, specific therapy for pertussis, and supportive interventions. Severe respiratory insufficiency (caused by primary pertussis pneumonia, secondary bacterial pneumonia, or both) is the most commonly recognized immediate cause of death among infants with underlying pertussis infection (*5–8*). Co-infection with viral pathogens also has occurred (*7*).

Refractory pulmonary hypertension is associated with fatal outcomes among very young infants with pertussis (*8,9*). During 2000, of the eight deceased infants for whom medical records were available, six (including the two cases in this report) received ECMO for management of pulmonary hypertension before their deaths (CDC, unpublished data, 2002). Risk factors and optimal treatment for pulmonary hypertension associated with pertussis are not defined clearly and require further investigation (*9*).

Adults and children with pertussis sometimes experience mild respiratory symptoms or typical symptoms (e.g., an inspiratory "whoop," prolonged paroxysmal cough, and posttussive vomiting) (*6*). Although some vulnerable infants exhibit these manifestations, infants with pertussis also can present with respiratory distress or apnea. Because the spectrum of symptoms among infected persons is broad, a timely diagnosis of pertussis can be difficult. Clinicians should consider pertussis as a possible cause of acute respiratory illness and apnea among vulnerable infants and as a possible cause of acute cough illness among noninfants, especially parents, siblings, and other contacts of infants. After collection of an NP specimen for *B. pertussis* culture, empiric macrolide antibiotic treatment should be initiated. Erythromycin is generally effective for *B. pertussis* treatment and chemoprophylaxis. Because published data describing the safety and efficacy of macrolides other than erythromycin are limited, erythromycin remains the preferred antibiotic for these indications (*6*).

Caregivers should minimize exposure of vulnerable infants to any persons with respiratory illness. As illustrated by these two cases, adult and adolescent caregivers and other family members have been linked epidemiologically as sources of pertussis infection for vulnerable infants (*10*). All suspected pertussis cases should be reported promptly to local public health officials, who will assist with control measures in households and communities.

Timely vaccination of infants and children according to current recommendations of the Advisory Committee on Immunization Practices remains the most effective way for infants' caregivers and health-care providers to prevent pertussis (*2*). Infants should receive the first DTaP vaccine at age 2 months, followed by doses at ages 4, 6, and 15–18 months and a booster dose at age 4–6 years. During a communitywide pertussis outbreak, an accelerated DTaP vaccination schedule may be used. Infants vaccinated with the accelerated DTaP vaccination schedule receive the first DTaP dose at age 6 weeks and the next 2 doses at 4-week intervals (*6*).

Acknowledgments

This report is based on data contributed by state health departments to the National Notifiable Disease Surveillance System and by: S Rios, D Woods-Stout, R Hoffman, MD, State Epidemiologist, Colorado Dept of Public Health. D Bastis, MPH, L Tabony, MPH, J Pelosi, MPH, D Perrotta, PhD, State Epidemiologist, Texas Dept of Health; S Whitworth, MD, L Snow, Cook Children's Medical Center, Fort Worth, Texas.

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Hepatitis B Vaccination Among High-Risk Adolescents and Adults — San Diego, California, 1998–2001

The national strategy to eliminate hepatitis B virus (HBV) transmission is based on 1) screening all pregnant women for hepatitis B surface antigen and post-exposure vaccination of infants of infected mothers; 2) vaccinating all infants as part of the childhood vaccination schedule; 3) vaccinating children and adolescents not vaccinated previously; and 4) vaccinating adolescents and adults in groups at increased risk for infection (*1,2*). These strategies have been implemented successfully in the United States except for the vaccination of adults and older adolescents at high risk (*2*). This report describes the initial findings of a hepatitis B vaccination program for potentially high-risk adolescents and adults conducted in areas of San Diego County, California. The findings indicate that high rates of hepatitis B vaccination can be achieved in clinics and programs that serve persons at high risk for HBV infection through the integration of hepatitis B vaccination into routine preventive health-care services. Improved efforts to vaccinate adolescents and adults at increased risk for HBV infection are critical to reduce disease incidence and prevent chronic HBV infection.

The San Diego Viral Hepatitis Prevention Project (VHPP) began in February 1998 with the selection of a convenience sample of sites* located primarily in the central and southeast areas of San Diego County, where the incidences of gonorrhea and chlamydia are higher than in other parts of the county. The population of San Diego County is approximately 2.9 million persons, and the population of the central and southeast areas is approximately 500,000 persons. Sites that serve both clients at high risk and those with a lower risk for HBV infection were selected. Hepatitis B vaccine was provided at no cost to participating sites, and project staff assisted site personnel in developing educational materials and administrative procedures and in monitoring vaccine coverage and completion. At sites that did not provide clinical services, the project provided a vaccination nurse on selected days.

At all participating sites, clinic managers/program administrators agreed to offer vaccine to all clients without collecting client-specific risk information. At most sites, clients starting vaccination were asked to complete a self-administered sexually transmitted disease (STD)/hepatitis risk-assessment form that included information about previous hepatitis B vaccination or infection. All STD clinic clients were asked to complete the risk-assessment form to determine the percentage of clients eligible to start vaccination (i.e., those with no self-reported history of previous hepatitis B vaccination or infection). Approximately 85% of STD clients were eligible to start hepatitis B vaccination; this percentage was used at other project sites to estimate the number of eligible clients. Risk criteria were not used to determine eligibility.

*Sites serving primarily persons with a high risk for HBV infection included clinics providing treatment for sexually transmitted diseases, centers providing services for men having sex with men, the Job Corps program for disadvantaged youth, clinics providing methadone treatment for injection-drug users, drug-offender rehabilitation programs, and correctional institutions. Sites serving primarily persons with a lower risk for HBV infection included clinics providing family planning services, teen services, university/college health care, and community primary care.

STD Clinics

Hepatitis B vaccination was offered to all clients of the county health department's STD clinics. During February 1998–January 2001, risk-assessment forms were completed by 18,221 clients, of whom 1,900 (10%) reported previous completion of the hepatitis B vaccination series. Among men who have sex with men (MSM) and injection-drug users (IDUs), 16% (286 of 1,755) and 6% (67 of 1,106), respectively, reported having completed the vaccination series previously; among those aged <25 years, 12% (31 of 265) of MSM and 8% (12 of 153) of IDUs reported completion of the series.

Of 18,221 clients completing risk-assessment forms, 15,502 (85%) were eligible to begin the vaccination series, of whom 11,405 (74%) received the first dose of vaccine. Of the 9,697 clients for whom ≥6 months had elapsed since they received the first dose, 5,123 (53%) received the second dose, and 2,910 (30%) completed the 3-dose series (Table).

To improve vaccination acceptance rates, during October 1999–December 2000, the main clinic offered all clients a 5-minute counseling session about hepatitis B vaccination. The acceptance rate for the first dose increased from 66% (4,390 of 6,615) during February 1998–September 1999 (before counseling was initiated) to 77% (3,094 of 4,040) during the 15-month counseling period (rate ratio [RR]=1.15; 95% confidence interval [CI]=1.13–1.18; p<0.001). Because of staff shortages and scheduling difficulties, counselors were not available on all days; as a result, some clients were not counseled. Among the 1,861 clients counseled, the acceptance rate for the first dose was 80%, compared with 74% (1,610 of 2,189) for clients who were not counseled (RR=1.08; 95% CI=1.05–1.12; p<0.001). HIV counselors now provide hepatitis prevention and vaccination information as part of pretest HIV counseling offered to all clients.

Other Sites

Other sites serving primarily clients at high-risk attained first-dose vaccination coverage rates of 4%–66%, with correctional institutions (i.e., county juvenile detention and adult jail) and a health-care clinic serving MSM having the lowest first-dose coverage rates (Table). At sites serving primarily clients at lower-risk, vaccine coverage was <30% at all sites except teen clinics, which had a first-dose coverage rate of 69%. Although community primary-care clinics vaccinated the most clients each month, their first-dose vaccination coverage rate was 11%. Clinic managers had agreed to implement a policy of offering vaccination to all new eligible clients; however, some clinics might have offered vaccine selectively based on clinical judgment of risk or were unable to integrate vaccination into their regular schedules.

Project support for hepatitis B vaccination continues at most high-risk sites. In addition, other viral hepatitis prevention services (e.g., selective hepatitis B and hepatitis C serologic screening, hepatitis A vaccination, and STD screening

TABLE. Number and percentage of adults and adolescents eligible for and receiving Hepatitis B vaccination at sites serving high- and lower-risk clients, by site, dose, and number of months vaccinating — San Diego, California, February 1998–January 2001

Site	No. sites	Eligible no.* monthly/dose 1	Dose 1 (%)	Dose 2† (%)	Dose 3† (%)	No. months vaccinating	Estimated total doses
High-risk clients							
STD clinic	4	428	(74)§	(53)	(30)	36	**20,772**
Job Corps	1	64	(66)	(67)	(26)	32	**2,592**
Center for MSM¶	1	26	(50)	(62)	(38)	20	**520**
Methadone clinic	1	34	(44)	(53)	(40)	10	**290**
Drug rehabilitation	2	56	(36)	(40)	(35)	20	**700**
Clinic for MSM	2	24	(25)	(67)	(33)	24	**288**
Juvenile detention	1	340	(18)	(94)	(31)	18	**2,502**
Women's jail	1	221	(12)	(65)	(8)	23	**1,035**
Men's jail	3	1,020	(4)	(51)	(2)	24	**1,656**
Lower-risk clients							
Teen clinic	2	163	(69)	(80)	(61)	18	**4,896**
Family planning	1	102	(25)	(68)	(36)	17	**867**
College health	5	340	(19)	(68)	(40)	15	**1,965**
University health	1	1,530	(11)	(69)	(44)	19	**6,821**
Community clinic	4	2,040	(11)	(49)	(34)	28	**11,312**

* Estimated as 85% of new client visits (except for jail sites, which used 85% of sick call visits); 85% was selected based on experience of clinics treating sexually transmitted diseases (STDs) that 15% of clients self-reported previous hepatitis B vaccination or disease and were therefore ineligible to start the vaccine.

† Dose 2–3 percentages determined from individual dose-completion forms of persons receiving first dose and having ≥6 months of follow-up at STD clinics, Job Corps, methadone clinic, drug rehabilitation clinic, clinic for men having sex with men, and university health clinic; quarterly aggregate dose 2–3 reports used at all other sites.

§ Actual vaccine dose 1 acceptance rate among eligible clients determined from risk-assessment form given all clients at clinics for treatment of STDs.

¶ Men having sex with men.

services) have been or are being integrated into STD clinics, court-ordered drug-offender rehabilitation programs, and anonymous HIV counseling and testing sites. The San Diego VHPP developed a guide for establishing hepatitis B vaccination services in an STD clinic (http://www.cdc.gov/hepatitis/spotlights/integration.htm). The guide has been distributed to all state health department STD, hepatitis C prevention, and vaccination programs.

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Editorial Note: Data from the San Diego VHPP indicate that high rates of hepatitis B vaccination can be achieved in some clinics and programs that serve persons at high risk for HBV infection through the integration of hepatitis B vaccination into routine clinic and program services. In the United States, the incidence of reported cases of acute hepatitis B has declined 76% since the late 1980s (*3*). The greatest decline has occurred among persons aged 10–29 years, and the median age of persons with acute hepatitis B has increased approximately 5 years during the 1990s (*3*). Universal vaccination of infants and adolescents prevents HBV infections within these age groups and eventually will prevent transmission among adults. However, because it will take several decades to achieve the secondary benefit of hepatitis B vaccination of infants and young adolescents, vaccination of older adolescents and of adults at increased risk for HBV infection is needed to reduce disease incidence and chronic HBV infection prevalence in the near future (*3*).

As with other vaccines recommended to prevent disease among older adolescents and adults, achieving high levels of hepatitis B vaccine coverage among these groups at increased risk for HBV infection has been difficult. Several obstacles account for low vaccine coverage including 1) inability of health-care providers to identify and deliver vaccine to at-risk populations; 2) lack of a public health infrastructure to support adult vaccination; 3) lack of familiarity by health-care providers with practices required to achieve high rates of adult vaccination; and 4) limited private- and public-sector reimbursement for adult vaccination.

Many persons at increased risk for HBV infection are clients of programs that provide other prevention and clinical services, at times in nonclinical settings. The San Diego VHPP tested the feasibility of vaccinating adults and older adolescents at increased risk for HBV infection at sites that provide services to such persons. For example, hepatitis B vaccination is recommended for all persons seeking care at STD clinics, a setting that provides services to the greatest number of adults at increased risk for HBV infection. Among persons with acute hepatitis B reported annually to a CDC hepatitis surveillance system, approximately 35% have been treated previously for STDs, which indicates the importance of this setting in the prevention of HBV infections (*3*). Earlier attempts at hepatitis B vaccination in STD clinics had limited success; first-dose acceptance rates varied (range: 44%–70%), and <30% of persons completed the 3-dose series (*4*; CDC, unpublished data, 1993, 1997). By providing counseling as part of an integrated service, the San Diego VHPP was able to achieve first-dose acceptance rates as high as 80%.

The goal of hepatitis B vaccination programs is to achieve the highest possible rate of 3-dose vaccination coverage. However, not being able to ensure high 3-dose completion rates should not preclude the initiation of hepatitis B vaccination in STD clinics. Among healthy young adults, protective levels of antibody develop in 30%–55% following a single dose of hepatitis B vaccine and in 75% after 2 doses (*5*–*7*). Although long-term (i.e., >10 years) protection cannot be ensured with incomplete vaccination, most persons responding to the first dose are expected to have protection for at least 5 years, which parallels their expected loss of antibody (*8*). Vaccination completion rates should be monitored, and efforts to increase series completion, especially among those at the highest risk (e.g., MSM and IDUs), should be strongly considered.

Reimbursement remains a major barrier to hepatitis B vaccination of persons at increased risk for infection. Sites (e.g., STD clinics) that serve adolescents aged <19 years can obtain and offer vaccination through reimbursement under the Vaccines for Children (VFC) program (http://www.cdc.gov/nip/vfc). In the San Diego VHPP, the majority of sites were enrolled with the state vaccination program as VFC providers. However, vaccination of adults was supported only through funding provided by the project. Private- and public-sector health insurance plans rarely cover hepatitis B vaccination for adults. Although some states and local jurisdictions provide hepatitis B vaccine in STD clinics (*9*), drug-treatment clinics, and prison health programs, many adults with high-risk medical or behavioral conditions have limited access to recommended vaccinations. Providing additional funding to purchase vaccine for uninsured and underinsured adult populations (*10*) would overcome a major barrier to vaccinating persons at high risk.

The findings in this report are subject to at least three limitations. First, sites for integration of hepatitis B vaccination services were selected on the basis of convenience and might

not be representative of all sites. Second, the eligibility criteria used in the STD clinic (i.e., no self-report of previous hepatitis B vaccination or disease) also was used to estimate the percent eligible in all other sites, including sites (e.g., community clinics) that might serve persons for whom hepatitis B vaccination is not specifically recommended. Clinicians at these sites might not have encouraged vaccination for adults without specific risk factors; however, because written risk assessments were not completed for most clients in these settings, the actual percentage of high-risk clients who were offered and received hepatitis B vaccination cannot be determined. Finally, completion rates might be underestimated because persons receiving a first dose of hepatitis B vaccine might not have been followed long enough to track subsequent doses.

The findings in this report suggest that a sustained vaccination program, when combined with a short counseling session, might achieve high levels of vaccine acceptance. Even when vaccination cost is not a barrier, achieving high rates of vaccination coverage requires that program managers set vaccination-coverage goals, train staff, review the vaccination status of all clients routinely, and use appropriate health-education materials and counseling services.

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Weekly Update: West Nile Virus Activity — United States, July 10–16, 2002

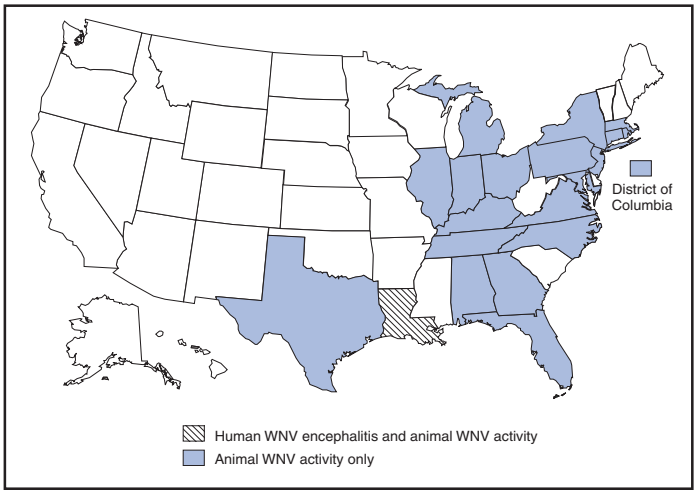
This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET and verified by states and other jurisdictions as of July 16, 2002.

During the reporting week of July 10–16, two human cases of WNV were reported, both in Louisiana. During the same period, WNV infections were reported in 55 dead crows, 115 other dead birds, nine horses, and 19 mosquito pools.

During 2002, three human cases of WNV encephalitis or meningitis have been reported, all from Louisiana. Among these cases, all were men, the median age was 62 years (range: 53–78 years), and the dates of illness onset ranged from June 10–28; no cases were fatal. In addition, 171 dead crows and 266 other dead birds with WNV infection were reported from 20 states and the District of Columbia (Figure); 23 WNV infections in horses have been reported from four states (Florida, Kentucky, Louisiana, and Texas). During 2002, WNV seroconversions have been reported in 10 sentinel chicken flocks from Florida; WNV seropositivity has been reported from two states (Indiana and Louisiana) in two wild birds that were caught and released; and 26 WNV-positive mosquito pools have been reported from six states (Alabama, Illinois, Indiana, Massachusetts, New Jersey, and Ohio).

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. Areas reporting West Nile virus (WNV) activity — United States, 2002*



* As of July 16, 2002.

Public Health Dispatch

Poliomyelitis — Madagascar, 2002

Surveillance for acute flaccid paralysis (AFP) in Madagascar has detected a cluster of four cases of paralytic poliomyelitis from which type-2 vaccine-derived polioviruses have been isolated. Preliminary data indicate that these patients, residing in the Tolagnaro district of Toliara province in southeastern Madagascar, had onset of paralysis during March 20–April 12, 2002. None of the children affected was vaccinated fully. During March–April 2002, provincial authorities conducted a small-scale house-to-house vaccination response. Genetic sequencing studies of these vaccine-derived viruses indicate substantial genetic drift and recombination with nonpolio enteroviruses. These findings are compatible with an outbreak of paralytic polio associated with a circulating vaccine-derived poliovirus (cVDPV); however, further investigation is required.

The three outbreaks of cVDPV described previously occurred in areas where routine oral polio vaccine (OPV) coverage is low, AFP surveillance is suboptimal, and supplementary vaccination activities have not been conducted for years (*1,2*). Vaccination coverage data suggest that during 1999, 37% of children aged <1 year had received 3 doses of OPV. In 2001, the nonpolio AFP rate of 0.3 case per 100,000 population aged <15 years was below the target level of 1.0.

A joint mission by the Ministry of Health of Madagascar, the Pasteur Institute of Madagascar, the World Health Organization, and United Nations Children's Fund (UNICEF) is ongoing to 1) conduct a field investigation of the cases to verify early reports, 2) review health facility records for any missed cases, 3) enhance the quality of AFP surveillance nationwide, and 4) plan for a nationwide house-to-house polio vaccination response. The work of this mission is being complemented by laboratory work in Madagascar, South Africa, France, and the United States.

Reported by: *Ministry of Health; Pasteur Institute, Madagascar. National Institute for Communicable Diseases, South Africa. Pasteur Institute, Paris, France. World Health Organization Regional Office for Africa, Harare, Zimbabwe. Vaccines and Biologicals Dept, World Health Organization, Geneva, Switzerland. Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Global Immunization Div, National Immunization Program, CDC.*

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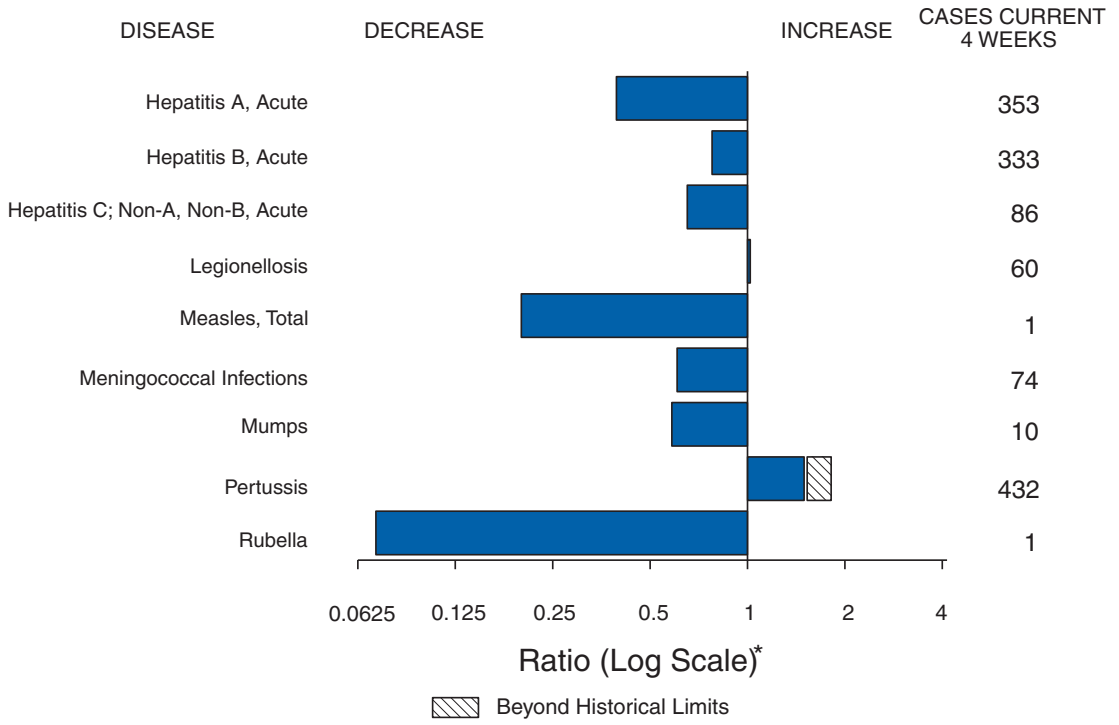
Erratum: Vol. 51, No. 27

In the Notice to Readers, "Resumption of Routine Schedule for Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine and for Measles, Mumps, and Rubella Vaccine," on page 599 under the heading "DTaP Vaccine," an error occurred in the first sentence of the second paragraph. The sentence should read, "During the DTaP vaccine shortage beginning in 2000 (*5*), ACIP recommended that health-care providers vaccinate infants with the initial 3 DTaP doses, if they did not have *sufficient* supply of DTaP to vaccinate all children in their practice."

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending July 13, 2002, with historical data



* 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 July 13, 2002 (28th Week)*

		Cum. 2002	Cum. 2001		Cum. 2002	Cum. 2001
Anthrax		2	1	Encephalitis: West Nile†	4	-
Botulism:	foodborne	9	11	Hansen disease (leprosy)†	40	39
	infant	33	52	Hantavirus pulmonary syndrome†	7	5
	other (wound & unspecified)	10	6	Hemolytic uremic syndrome, postdiarrheal†	82	63
Brucellosis†		44	62	HIV infection, pediatric†§	98	88
Chancroid		35	23	Plague	-	2
Cholera		4	2	Poliomyelitis, paralytic	-	-
Cyclosporiasis†		82	64	Psittacosis†	12	7
Diphtheria		1	1	Q fever†	19	12
Ehrlichiosis:	human granulocytic (HGE)†	102	50	Rabies, human	1	1
	human monocytic (HME)†	48	44	Streptococcal toxic-shock syndrome†	42	52
	other and unspecified	2	3	Tetanus	9	22
Encephalitis:	California serogroup viral†	7	6	Toxic-shock syndrome	68	70
	eastern equine†	1	-	Trichinosis	9	10
	Powassan†	-	-	Tularemia†	27	54
	St. Louis†	-	-	Yellow fever	1	-
	western equine†	-	-			

-:No reported cases.
* Incidence data for reporting year 2001 and 2002 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 June 30, 2002.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	AIDS		Chlamydia†		Cryptosporidiosis		*Escherichia coli* O157:H7		*Escherichia coli* Shiga Toxin Positive, Serogroup non-O157	
	Cum. 2002§	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	20,967	20,376	386,540	401,933	1,045	1,070	983	1,046	38	45
NEW ENGLAND	802	731	13,879	11,565	63	51	78	111	8	20
Maine	19	20	782	642	2	4	3	12	-	-
N.H.	19	15	849	708	14	2	7	12	-	3
Vt.	8	10	344	315	14	13	3	5	-	-
Mass.	377	401	5,736	4,468	15	25	39	59	4	5
R.I.	62	51	1,487	1,495	13	3	5	6	-	-
Conn.	317	234	4,681	3,937	5	4	21	17	4	12
MID. ATLANTIC	4,702	5,358	39,721	43,383	117	146	74	82	-	-
Upstate N.Y.	359	782	8,606	6,943	35	42	61	48	-	-
N.Y. City	2,554	2,968	15,057	15,965	55	60	4	8	-	-
N.J.	812	919	3,385	7,074	7	7	9	26	-	-
Pa.	977	689	12,673	13,401	20	37	N	N	-	-
E.N. CENTRAL	2,241	1,404	66,447	74,241	267	358	252	241	1	3
Ohio	433	232	18,027	19,216	70	56	56	59	1	2
Ind.	306	163	8,711	8,236	24	32	24	37	-	-
Ill.	1,029	670	16,866	22,290	40	40	76	61	-	-
Mich.	364	261	16,590	15,900	54	73	40	27	-	1
Wis.	109	78	6,253	8,599	79	157	56	57	-	-
W.N. CENTRAL	330	449	20,973	20,752	115	98	154	125	4	2
Minn.	72	81	4,987	4,181	50	32	54	47	3	-
Iowa	47	47	2,724	2,540	13	25	40	20	-	-
Mo.	138	209	7,640	7,319	16	20	23	23	N	N
N. Dak.	1	1	469	559	6	4	3	1	-	-
S. Dak.	2	18	1,150	950	5	5	17	8	1	1
Nebr.	31	47	589	1,867	16	12	9	15	-	1
Kans.	39	46	3,414	3,336	9	-	8	11	-	-
S. ATLANTIC	6,499	6,108	75,501	77,235	167	170	100	90	15	13
Del.	114	115	1,426	1,550	1	1	4	1	-	-
Md.	961	753	7,796	8,141	9	27	5	6	-	-
D.C.	321	460	1,694	1,810	3	9	-	-	-	-
Va.	488	541	8,887	9,365	4	9	24	24	1	2
W. Va.	50	47	1,244	1,258	2	1	2	3	-	-
N.C.	456	376	12,797	11,286	23	17	17	26	-	-
S.C.	455	338	7,033	8,399	2	2	-	2	-	-
Ga.	1,087	750	13,981	16,326	80	68	34	16	9	7
Fla.	2,567	2,728	20,643	19,100	43	36	14	12	5	4
E.S. CENTRAL	919	953	26,438	26,519	71	21	47	52	-	-
Ky.	150	201	4,578	4,730	1	3	14	23	-	-
Tenn.	404	271	8,459	7,812	38	4	21	18	-	-
Ala.	173	224	8,157	7,509	28	7	7	8	-	-
Miss.	192	257	5,244	6,468	4	7	5	3	-	-
W.S. CENTRAL	2,181	2,021	55,305	57,264	15	35	13	112	-	-
Ark.	149	104	3,327	4,099	5	3	3	4	-	-
La.	508	458	9,943	9,438	4	7	-	3	-	-
Okla.	119	106	5,485	5,795	6	6	10	13	-	-
Tex.	1,405	1,353	36,550	37,932	-	19	-	92	-	-
MOUNTAIN	678	711	23,795	23,583	75	59	98	104	6	3
Mont.	6	12	1,143	1,155	4	5	9	6	-	-
Idaho	15	15	1,324	920	17	7	7	14	2	2
Wyo.	4	1	467	431	6	1	2	4	1	-
Colo.	133	153	7,096	6,512	20	18	34	44	1	1
N. Mex.	51	59	3,234	3,181	9	11	5	6	1	-
Ariz.	284	279	7,334	7,797	10	3	12	12	1	-
Utah	35	62	1,137	916	6	11	19	12	-	-
Nev.	150	130	2,060	2,671	3	3	10	6	-	-
PACIFIC	2,615	2,641	64,481	67,391	155	132	167	129	4	4
Wash.	264	284	7,495	7,251	24	U	20	29	-	-
Oreg.	196	110	3,604	3,866	21	15	45	21	4	4
Calif.	2,090	2,205	49,414	52,738	109	114	78	69	-	-
Alaska	12	14	1,860	1,443	-	-	4	2	-	-
Hawaii	53	28	2,108	2,093	1	3	20	8	-	-
Guam	2	8	-	221	-	-	N	N	-	-
P.R.	601	578	1,576	1,454	-	-	-	-	-	-
V.I.	60	2	30	94	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	2	U	117	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 and 2002 are provisional and cumulative (year-to-date).

† 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 update June 30, 2002.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	*Escherichia coli* Shiga Toxin Positive, Not Serogrouped		Giardiasis	Gonorrhea		*Haemophilus influenzae*, Invasive			
						All Ages, All Serotypes		Age <5 Years Serotype B	
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	17	4	7,198	163,406	182,299	881	878	12	15
NEW ENGLAND	-	1	741	3,987	3,118	63	56	-	1
Maine	-	-	82	62	70	1	1	-	-
N.H.	-	-	25	64	82	5	-	-	-
Vt.	-	1	57	45	39	5	2	-	-
Mass.	-	-	351	1,780	1,332	30	33	-	1
R.I.	-	-	68	474	378	9	2	-	-
Conn.	-	-	158	1,562	1,217	13	18	-	-
MID. ATLANTIC	-	-	1,608	18,235	20,642	153	125	3	3
Upstate N.Y.	-	-	554	4,409	4,293	69	39	2	-
N.Y. City	-	-	641	6,133	6,648	34	34	-	-
N.J.	-	-	144	2,829	3,232	31	28	-	-
Pa.	-	-	269	4,864	6,469	19	24	1	3
E.N. CENTRAL	8	2	1,321	31,686	38,086	144	154	2	1
Ohio	8	2	410	9,598	10,354	55	48	-	1
Ind.	-	-	-	3,776	3,418	31	28	1	-
Ill.	-	-	304	9,119	12,007	43	52	-	-
Mich.	-	-	398	7,265	9,274	9	8	1	-
Wis.	-	-	209	1,928	3,033	6	18	-	-
W.N. CENTRAL	-	-	847	8,157	8,550	33	38	-	1
Minn.	-	-	309	1,457	1,319	20	20	-	-
Iowa	-	-	119	602	648	1	-	-	-
Mo.	N	N	243	4,406	4,336	9	12	-	-
N. Dak.	-	-	11	27	19	-	4	-	-
S. Dak.	-	-	35	138	146	-	-	-	-
Nebr.	-	-	52	137	634	-	1	-	1
Kans.	-	-	78	1,390	1,448	3	1	-	-
S. ATLANTIC	-	-	1,275	43,620	47,054	220	221	1	1
Del.	-	-	26	859	887	-	-	-	-
Md.	-	-	50	4,339	4,625	52	56	1	-
D.C.	-	-	20	1,408	1,560	-	-	-	-
Va.	-	-	111	5,375	4,997	16	18	-	-
W. Va.	-	-	20	523	328	6	8	-	1
N.C.	-	-	-	8,535	8,790	21	31	-	-
S.C.	-	-	35	4,212	6,242	11	4	-	-
Ga.	-	-	497	7,615	8,801	67	59	-	-
Fla.	-	-	516	10,754	10,824	47	45	-	-
E.S. CENTRAL	1	1	172	15,029	16,969	37	56	1	-
Ky.	1	1	-	1,822	1,835	3	2	-	-
Tenn.	-	-	78	4,821	5,137	20	27	-	-
Ala.	-	-	94	5,250	5,804	9	25	1	-
Miss.	-	-	-	3,136	4,193	5	2	-	-
W.S. CENTRAL	-	-	89	24,322	27,735	33	34	2	1
Ark.	-	-	66	1,862	2,590	1	-	-	-
La.	-	-	1	6,158	6,570	2	6	-	-
Okla.	-	-	22	2,344	2,607	28	27	-	-
Tex.	-	-	-	13,958	15,968	2	1	2	1
MOUNTAIN	8	-	665	4,964	5,505	116	96	2	3
Mont.	-	-	35	55	69	-	-	-	-
Idaho	-	-	46	40	42	2	1	-	-
Wyo.	-	-	12	32	32	1	-	-	-
Colo.	8	-	219	1,704	1,657	21	26	-	-
N. Mex.	-	-	77	623	519	18	14	-	-
Ariz.	-	-	85	1,785	2,153	55	40	1	1
Utah	-	-	123	107	80	14	5	-	-
Nev.	-	-	68	618	953	5	10	1	2
PACIFIC	-	-	480	13,406	14,640	82	98	1	4
Wash.	-	-	185	1,485	1,574	2	1	1	-
Oreg.	-	-	198	434	615	42	30	-	-
Calif.	-	-	-	10,859	11,910	12	44	-	4
Alaska	-	-	48	327	202	1	3	-	-
Hawaii	-	-	49	301	339	25	20	-	-
Guam	-	-	-	-	24	-	-	-	-
P.R.	-	-	11	237	336	1	1	-	-
V.I.	-	-	-	17	14	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	11	U	-	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	*Haemophilus influenzae*, Invasive, Age <5 Years, Non-Serotype B, Cum. 2002	*Haemophilus influenzae*, Invasive, Age <5 Years, Non-Serotype B, Cum. 2001	*Haemophilus influenzae*, Invasive, Age <5 Years, Unknown Serotype, Cum. 2002	*Haemophilus influenzae*, Invasive, Age <5 Years, Unknown Serotype, Cum. 2001	Hepatitis (Viral, Acute), By Type, A, Cum. 2002	Hepatitis (Viral, Acute), By Type, A, Cum. 2001	Hepatitis (Viral, Acute), By Type, B, Cum. 2002	Hepatitis (Viral, Acute), By Type, B, Cum. 2001	Hepatitis (Viral, Acute), By Type, C; Non-A, Non-B, Cum. 2002	Hepatitis (Viral, Acute), By Type, C; Non-A, Non-B, Cum. 2001
UNITED STATES	138	148	12	17	4,420	4,766	3,367	3,648	1,704	2,215
NEW ENGLAND	7	10	-	-	181	269	113	70	18	27
Maine	-	-	-	-	6	5	4	5	-	-
N.H.	-	-	-	-	10	7	12	10	-	-
Vt.	-	-	-	-	1	6	3	5	11	6
Mass.	4	7	-	-	82	108	59	13	7	21
R.I.	-	-	-	-	27	12	17	12	-	-
Conn.	3	3	-	-	55	131	18	25	-	-
MID. ATLANTIC	21	20	-	3	549	625	750	719	806	643
Upstate N.Y.	8	6	-	1	108	145	79	68	31	18
N.Y. City	6	5	-	-	228	227	415	346	-	-
N.J.	4	3	-	-	64	150	146	147	759	587
Pa.	3	6	-	2	149	103	110	158	16	38
E.N. CENTRAL	20	28	-	1	615	574	424	431	58	109
Ohio	5	8	-	-	196	131	58	62	6	7
Ind.	7	4	-	1	32	45	18	24	-	1
Ill.	7	11	-	-	168	178	40	54	8	9
Mich.	-	-	-	-	125	178	308	268	44	92
Wis.	1	5	-	-	94	42	-	23	-	-
W.N. CENTRAL	2	2	3	2	186	204	114	114	476	680
Minn.	2	1	1	-	26	16	8	11	-	2
Iowa	-	-	-	-	46	19	11	12	1	-
Mo.	-	-	2	2	51	45	65	66	467	672
N. Dak.	-	1	-	-	1	2	4	-	-	-
S. Dak.	-	-	-	-	3	1	-	1	-	-
Nebr.	-	-	-	-	5	27	14	14	6	3
Kans.	-	-	-	-	54	94	12	10	2	3
S. ATLANTIC	33	30	2	5	1,328	887	873	665	89	36
Del.	-	-	-	-	9	4	7	13	5	2
Md.	1	4	-	1	163	129	67	72	6	4
D.C.	-	-	-	-	49	22	10	9	-	-
Va.	2	4	-	-	51	68	114	80	2	-
W. Va.	-	1	1	-	10	7	13	16	1	6
N.C.	3	1	-	4	131	77	134	110	14	10
S.C.	4	1	-	-	42	34	56	15	4	4
Ga.	16	14	-	-	312	484	282	203	23	-
Fla.	7	5	1	-	561	62	190	147	34	10
E.S. CENTRAL	8	11	1	2	156	195	185	248	106	140
Ky.	-	-	-	1	35	48	28	27	2	5
Tenn.	5	5	-	-	60	74	75	125	20	40
Ala.	3	5	1	1	23	58	40	51	3	2
Miss.	-	1	-	-	38	15	42	45	81	93
W.S. CENTRAL	6	4	-	-	67	542	214	430	22	457
Ark.	-	-	-	-	25	38	61	56	4	5
La.	1	-	-	-	16	58	28	66	14	103
Okla.	5	4	-	-	25	82	15	66	4	4
Tex.	-	-	-	-	1	364	110	242	-	345
MOUNTAIN	24	12	5	1	334	408	259	268	52	38
Mont.	-	-	-	-	9	6	3	2	-	1
Idaho	1	-	-	-	20	46	5	8	-	1
Wyo.	-	-	-	-	2	2	9	1	7	4
Colo.	2	-	-	-	55	40	49	60	23	5
N. Mex.	4	6	1	1	9	18	44	71	-	11
Ariz.	12	4	3	-	175	210	94	87	3	9
Utah	4	2	-	-	35	38	23	15	2	1
Nev.	1	-	1	-	29	48	32	24	17	6
PACIFIC	17	31	1	3	1,004	1,062	435	703	77	85
Wash.	1	-	-	1	97	55	33	67	13	16
Oreg.	4	5	-	-	49	69	78	88	13	10
Calif.	9	24	1	1	850	916	318	530	51	59
Alaska	1	1	-	-	7	12	3	4	-	-
Hawaii	2	1	-	1	1	10	3	14	-	-
Guam	-	-	-	-	-	1	-	-	-	-
P.R.	-	1	-	-	58	95	47	147	-	1
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	31	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	Legionellosis		Listeriosis		Lyme Disease		Malaria		Measles Total	
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	383	473	217	276	3,399	5,005	564	704	10†	84§
NEW ENGLAND	22	19	25	28	369	1,222	34	45	-	5
Maine	2	1	2	-	-	-	1	3	-	-
N.H.	4	4	2	1	52	26	5	2	-	-
Vt.	3	4	1	-	4	4	1	-	-	1
Mass.	9	5	15	15	244	578	13	21	-	3
R.I.	-	1	1	1	46	123	3	3	-	-
Conn.	4	4	4	11	23	491	11	16	-	1
MID. ATLANTIC	91	102	39	47	2,407	2,731	121	185	5	12
Upstate N.Y.	30	28	18	13	1,488	802	21	24	-	4
N.Y. City	18	11	11	13	77	43	76	114	5	2
N.J.	10	7	3	8	162	1,007	13	26	-	1
Pa.	33	56	7	13	680	879	11	21	-	5
E.N. CENTRAL	89	131	26	41	29	409	66	94	1	10
Ohio	39	56	9	8	24	10	12	13	1	3
Ind.	8	10	4	4	5	6	3	12	-	4
Ill.	-	17	1	13	-	23	17	39	-	3
Mich.	30	27	9	13	-	2	27	19	-	-
Wis.	12	21	3	3	U	368	7	11	-	-
W.N. CENTRAL	24	29	8	6	84	89	41	21	-	4
Minn.	2	7	-	-	48	49	14	6	-	2
Iowa	6	6	1	-	14	16	2	3	-	-
Mo.	10	9	5	3	18	20	11	7	-	2
N. Dak.	-	1	1	-	-	-	1	-	-	-
S. Dak.	2	2	-	-	-	-	-	-	-	-
Nebr.	4	3	-	1	-	2	5	2	-	-
Kans.	-	1	1	2	4	2	8	3	-	-
S. ATLANTIC	91	74	38	32	413	423	158	149	1	4
Del.	5	2	-	1	54	59	1	1	-	-
Md.	15	21	5	4	229	266	44	64	-	3
D.C.	5	2	-	-	12	7	7	9	-	-
Va.	8	11	3	5	25	66	12	30	-	-
W. Va.	N	N	-	4	5	8	2	1	-	-
N.C.	5	5	3	2	52	10	9	6	-	-
S.C.	5	3	5	3	5	2	5	4	-	-
Ga.	10	8	10	7	1	-	55	21	-	1
Fla.	38	22	12	6	30	5	23	13	1	-
E.S. CENTRAL	12	37	8	10	25	21	9	15	-	2
Ky.	7	9	2	4	12	7	2	4	-	2
Tenn.	1	16	3	3	7	7	2	6	-	-
Ala.	4	8	3	3	6	4	3	3	-	-
Miss.	-	4	-	-	-	3	2	2	-	-
W.S. CENTRAL	3	16	4	23	2	57	3	49	-	1
Ark.	-	-	-	1	-	-	1	3	-	-
La.	1	6	-	-	1	4	2	4	-	-
Okla.	2	3	4	1	-	-	-	2	-	-
Tex.	-	7	-	21	1	53	-	40	-	1
MOUNTAIN	17	28	18	25	12	6	27	29	-	1
Mont.	1	-	-	-	-	-	-	2	-	-
Idaho	-	1	2	1	2	3	-	3	-	1
Wyo.	1	2	-	1	-	1	-	-	-	-
Colo.	4	11	2	5	3	-	14	15	-	-
N. Mex.	1	2	2	6	1	-	1	2	-	-
Ariz.	3	8	9	6	2	-	5	3	-	-
Utah	6	2	3	1	3	-	4	2	-	-
Nev.	1	2	-	5	1	2	3	2	-	-
PACIFIC	34	37	51	64	58	47	105	117	3	45
Wash.	3	6	4	3	-	1	11	4	-	15
Oreg.	N	N	3	4	8	6	5	8	-	2
Calif.	31	26	39	56	49	38	81	97	3	22
Alaska	-	1	-	-	1	2	2	1	-	-
Hawaii	-	4	5	1	N	N	6	7	-	6
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	2	1	-	N	N	-	3	-	-
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).
† Of 10 cases reported, three were indigenous and seven were imported from another country.
§ Of 84 cases reported, 41 were indigenous and 43 were imported from another country.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	Meningococcal Disease		Mumps		Pertussis		Rabies, Animal	
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	942	1,501	153	122	3,325	2,692	2,818	3,670
NEW ENGLAND	63	72	7	-	325	254	409	332
Maine	4	1	-	-	5	-	23	36
N.H.	8	9	4	-	6	14	11	6
Vt.	4	4	-	-	56	24	60	37
Mass.	30	43	2	-	248	200	140	118
R.I.	4	2	-	-	4	2	31	30
Conn.	13	13	1	-	6	14	144	105
MID. ATLANTIC	94	158	14	14	158	200	521	603
Upstate N.Y.	32	45	2	2	112	103	316	368
N.Y. City	13	25	1	8	7	33	10	14
N.J.	12	27	1	-	3	8	75	98
Pa.	37	61	10	4	36	56	120	123
E.N. CENTRAL	143	210	17	17	411	318	38	44
Ohio	54	57	3	1	224	166	10	14
Ind.	23	23	1	1	22	24	8	1
Ill.	27	51	6	12	65	36	8	5
Mich.	27	48	6	2	32	28	12	17
Wis.	12	31	1	1	68	64	-	7
W.N. CENTRAL	85	99	11	5	314	121	213	200
Minn.	22	15	3	2	109	31	16	19
Iowa	12	21	-	-	107	15	33	43
Mo.	34	35	3	-	61	55	21	18
N. Dak.	-	5	1	-	-	-	11	24
S. Dak.	2	4	-	-	5	3	32	29
Nebr.	10	10	-	1	4	3	-	4
Kans.	5	9	4	2	28	14	100	63
S. ATLANTIC	164	229	17	17	209	121	1,211	1,276
Del.	6	3	-	-	2	-	24	22
Md.	4	32	3	4	21	18	165	262
D.C.	-	-	-	-	1	1	-	-
Va.	28	28	3	2	88	12	262	228
W. Va.	-	8	-	-	12	1	95	67
N.C.	19	55	1	1	20	40	360	318
S.C.	15	22	2	1	28	21	43	71
Ga.	24	34	4	7	16	16	132	202
Fla.	68	47	4	2	21	12	130	106
E.S. CENTRAL	60	97	11	3	102	57	89	145
Ky.	10	17	4	1	39	13	16	12
Tenn.	24	41	2	-	36	25	49	106
Ala.	16	29	2	-	20	16	24	27
Miss.	10	10	3	2	7	3	-	-
W.S. CENTRAL	54	235	11	9	764	252	64	727
Ark.	20	13	-	-	339	11	-	-
La.	17	57	1	2	4	4	-	5
Okla.	16	21	-	-	41	9	64	43
Tex.	1	144	10	7	380	228	-	679
MOUNTAIN	62	71	12	8	452	907	132	137
Mont.	2	3	-	-	2	10	7	20
Idaho	3	7	1	-	46	165	8	2
Wyo.	-	4	-	1	7	-	13	20
Colo.	20	27	2	2	181	171	20	-
N. Mex.	3	8	1	2	82	50	4	5
Ariz.	19	11	1	1	89	461	76	87
Utah	4	7	4	1	27	39	2	2
Nev.	11	4	3	1	18	11	2	1
PACIFIC	217	330	53	49	590	462	141	206
Wash.	42	43	-	1	264	76	-	-
Oreg.	34	39	N	N	102	30	2	-
Calif.	134	238	43	26	213	331	115	168
Alaska	1	2	-	1	4	2	24	38
Hawaii	6	8	10	21	7	23	-	-
Guam	-	-	-	-	-	-	-	-
P.R.	3	4	-	-	1	-	43	62
V.I.	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	1	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	Rocky Mountain Spotted Fever		Rubella				Salmonellosis	
			Rubella		Congenital Rubella			
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	339	215	5	15	2	-	15,304	16,861
NEW ENGLAND	-	2	-	-	-	-	926	1,228
Maine	-	-	-	-	-	-	72	110
N.H.	-	-	-	-	-	-	61	95
Vt.	-	-	-	-	-	-	34	35
Mass.	-	2	-	-	-	-	513	715
R.I.	-	-	-	-	-	-	59	64
Conn.	-	-	-	-	-	-	187	209
MID. ATLANTIC	19	11	3	6	-	-	1,934	2,291
Upstate N.Y.	5	-	2	1	-	-	693	516
N.Y. City	2	1	-	4	-	-	621	627
N.J.	3	2	1	1	-	-	192	539
Pa.	9	8	-	-	-	-	428	609
E.N. CENTRAL	6	13	-	2	-	-	2,474	2,326
Ohio	4	1	-	-	-	-	682	680
Ind.	1	1	-	-	-	-	211	230
Ill.	-	11	-	2	-	-	770	649
Mich.	1	-	-	-	-	-	440	402
Wis.	-	-	-	-	-	-	371	365
W.N. CENTRAL	47	30	-	3	-	-	1,142	980
Minn.	-	-	-	-	-	-	264	304
Iowa	1	1	-	1	-	-	195	152
Mo.	46	27	-	1	-	-	423	237
N. Dak.	-	-	-	-	-	-	25	15
S. Dak.	-	2	-	-	-	-	44	70
Nebr.	-	-	-	-	-	-	51	68
Kans.	-	-	-	1	-	-	140	134
S. ATLANTIC	195	89	-	3	-	-	3,721	3,645
Del.	2	-	-	-	-	-	31	42
Md.	25	15	-	-	-	-	382	374
D.C.	-	-	-	-	-	-	40	39
Va.	12	8	-	-	-	-	401	582
W. Va.	1	-	-	-	-	-	46	53
N.C.	102	44	-	-	-	-	528	517
S.C.	32	13	-	2	-	-	210	360
Ga.	18	6	-	-	-	-	813	672
Fla.	3	3	-	1	-	-	1,270	1,006
E.S. CENTRAL	34	44	-	-	1	-	1,061	955
Ky.	2	1	-	-	-	-	164	166
Tenn.	24	35	-	-	1	-	263	249
Ala.	8	4	-	-	-	-	305	276
Miss.	-	4	-	-	-	-	329	264
W.S. CENTRAL	28	19	1	-	-	-	614	2,003
Ark.	-	4	-	-	-	-	315	259
La.	-	1	-	-	-	-	118	347
Okla.	28	14	-	-	-	-	179	147
Tex.	-	-	1	-	-	-	2	1,250
MOUNTAIN	8	7	-	-	-	-	1,031	1,014
Mont.	1	1	-	-	-	-	48	39
Idaho	-	1	-	-	-	-	60	70
Wyo.	2	2	-	-	-	-	29	31
Colo.	1	-	-	-	-	-	261	279
N. Mex.	-	1	-	-	-	-	143	125
Ariz.	-	-	-	-	-	-	290	270
Utah	-	2	-	-	-	-	92	113
Nev.	4	-	-	-	-	-	108	87
PACIFIC	2	-	1	1	1	-	2,401	2,419
Wash.	-	-	-	-	-	-	225	226
Oreg.	1	-	-	-	-	-	201	145
Calif.	1	-	1	-	-	-	1,809	1,835
Alaska	-	-	-	-	-	-	35	25
Hawaii	-	-	-	1	1	-	131	188
Guam	-	-	-	-	-	-	-	10
P.R.	-	-	-	3	-	-	101	484
V.I.	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	21	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	Shigellosis		Streptococcal Disease, Invasive, Group A		*Streptococcus pneumoniae*, Drug Resistant, Invasive		*Streptococcus pneumoniae*, Invasive (<5 Years)	
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	6,978	8,130	2,443	2,286	1,313	1,827	136	265
NEW ENGLAND	127	132	119	159	8	85	1	30
Maine	3	5	14	10	-	-	-	-
N.H.	5	2	25	N	-	-	N	N
Vt.	-	3	9	9	3	7	1	-
Mass.	88	92	58	51	N	N	N	N
R.I.	7	8	13	8	5	-	-	2
Conn.	24	22	-	81	-	78	-	28
MID. ATLANTIC	399	839	414	411	76	115	43	73
Upstate N.Y.	97	316	209	179	68	113	43	73
N.Y. City	189	226	103	121	U	U	U	U
N.J.	48	152	71	73	N	N	N	N
Pa.	65	145	31	38	8	2	-	-
E.N. CENTRAL	720	1,372	393	547	124	126	53	68
Ohio	356	693	145	138	N	N	N	N
Ind.	39	125	29	43	119	126	28	38
Ill.	194	268	30	178	2	-	-	30
Mich.	76	152	189	140	3	-	N	N
Wis.	55	134	-	48	N	N	25	-
W.N. CENTRAL	595	812	169	222	146	85	33	31
Minn.	130	251	87	80	48	40	33	24
Iowa	62	238	-	-	N	N	N	N
Mo.	81	139	37	55	6	9	-	-
N. Dak.	15	13	-	7	1	4	-	7
S. Dak.	149	84	9	7	1	3	-	-
Nebr.	104	41	13	28	23	9	N	N
Kans.	54	46	23	45	67	20	N	N
S. ATLANTIC	2,756	1,122	496	393	806	973	1	4
Del.	11	5	1	2	3	2	N	N
Md.	482	58	83	N	N	N	N	N
D.C.	34	30	5	3	42	3	1	3
Va.	493	106	50	60	N	N	N	N
W. Va.	4	5	12	16	34	36	-	1
N.C.	155	203	93	107	N	N	U	U
S.C.	46	144	28	7	128	199	N	N
Ga.	894	146	129	131	249	278	U	U
Fla.	637	425	95	67	350	455	N	N
E.S. CENTRAL	681	808	68	50	91	174	-	-
Ky.	75	295	12	18	10	18	N	N
Tenn.	33	50	56	32	81	155	N	N
Ala.	348	146	-	-	-	1	N	N
Miss.	225	317	-	-	-	-	-	-
W.S. CENTRAL	408	1,502	39	218	34	239	2	59
Ark.	110	374	5	-	5	13	-	-
La.	63	144	-	-	29	196	1	59
Okla.	234	20	33	31	N	N	1	-
Tex.	1	964	1	187	N	N	-	-
MOUNTAIN	301	423	413	248	28	29	3	-
Mont.	2	-	-	-	-	-	-	-
Idaho	2	19	5	4	N	N	N	N
Wyo.	3	2	7	7	9	5	-	-
Colo.	59	86	147	99	-	-	-	-
N. Mex.	57	64	68	53	19	22	-	-
Ariz.	139	193	177	82	-	-	N	N
Utah	23	27	9	3	-	-	3	-
Nev.	16	32	-	-	-	2	-	-
PACIFIC	991	1,120	332	38	-	1	-	-
Wash.	70	97	36	-	-	-	N	N
Oreg.	48	59	N	N	N	N	N	N
Calif.	844	933	260	-	N	N	N	N
Alaska	2	4	-	-	-	-	N	N
Hawaii	27	27	36	38	-	1	-	-
Guam	-	31	-	1	-	-	-	-
P.R.	5	12	N	N	-	-	N	N
V.I.	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	-	-	U	U
C.N.M.I.	14	U	-	U	-	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 13, 2002, and July 14, 2001 (28th Week)*

Reporting Area	Syphilis				Tuberculosis		Typhoid Fever	
	Primary & Secondary		Congenital					
	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001	Cum. 2002	Cum. 2001
UNITED STATES	3,234	3,009	160	279	5,846	6,926	129	166
NEW ENGLAND	65	27	-	3	207	245	10	8
Maine	-	-	-	-	5	10	-	1
N.H.	1	1	-	-	7	11	-	1
Vt.	1	2	-	-	-	4	-	-
Mass.	47	15	-	2	104	117	8	5
R.I.	2	3	-	-	27	38	-	-
Conn.	14	6	-	1	64	65	2	1
MID. ATLANTIC	364	260	25	40	1,092	1,173	36	57
Upstate N.Y.	19	10	3	2	158	165	5	13
N.Y. City	204	149	11	20	577	601	19	21
N.J.	68	49	10	18	247	269	9	20
Pa.	73	52	1	-	110	138	3	3
E.N. CENTRAL	562	522	24	41	548	694	13	20
Ohio	75	49	-	2	95	134	4	2
Ind.	42	95	-	5	58	48	2	2
Ill.	150	159	18	27	270	349	1	9
Mich.	287	202	6	4	119	126	3	4
Wis.	8	17	-	3	6	37	3	3
W.N. CENTRAL	52	43	-	5	282	266	4	6
Minn.	18	20	-	1	122	116	3	2
Iowa	2	3	-	-	17	18	-	-
Mo.	16	9	-	3	81	59	1	4
N. Dak.	-	-	-	-	1	3	-	-
S. Dak.	-	-	-	-	9	8	-	-
Nebr.	4	1	-	-	9	21	-	-
Kans.	12	10	-	1	43	41	-	-
S. ATLANTIC	860	1,067	38	72	1,227	1,338	16	21
Del.	8	9	-	-	7	9	-	-
Md.	103	138	5	2	140	114	3	6
D.C.	48	15	1	2	-	37	-	-
Va.	41	61	1	4	93	127	-	6
W. Va.	-	-	-	-	12	16	-	-
N.C.	158	249	14	8	167	180	-	1
S.C.	67	145	3	18	102	115	-	-
Ga.	152	178	1	14	201	261	7	6
Fla.	283	272	13	24	505	479	6	2
E.S. CENTRAL	287	322	10	21	385	440	4	-
Ky.	52	25	2	-	71	70	4	-
Tenn.	110	179	3	13	147	157	-	-
Ala.	97	58	4	4	120	145	-	-
Miss.	28	60	1	4	47	68	-	-
W.S. CENTRAL	433	369	39	47	713	1,109	-	11
Ark.	12	22	1	5	71	73	-	-
La.	66	70	-	-	-	65	-	-
Okla.	36	37	2	3	69	74	-	-
Tex.	319	240	36	39	573	897	-	11
MOUNTAIN	145	111	9	16	191	259	9	6
Mont.	-	-	-	-	6	-	-	1
Idaho	2	-	1	-	8	3	-	-
Wyo.	-	-	-	-	2	1	-	-
Colo.	11	15	1	1	25	66	5	-
N. Mex.	25	10	-	1	21	34	-	-
Ariz.	100	76	7	14	101	99	-	1
Utah	3	7	-	-	16	14	3	-
Nev.	4	3	-	-	12	42	1	4
PACIFIC	466	288	15	34	1,201	1,402	37	37
Wash.	26	32	1	-	124	124	4	3
Oreg.	7	7	1	-	50	52	2	3
Calif.	428	243	13	34	925	1,119	31	29
Alaska	-	-	-	-	32	24	-	-
Hawaii	5	6	-	-	70	83	-	2
Guam	-	2	-	-	-	37	-	2
P.R.	126	134	10	2	33	53	-	-
V.I.	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	13	U	-	U	27	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting year 2001 and 2002 are provisional and cumulative (year-to-date).

TABLE III. Deaths in 122 U.S. cities,* week ending July 13, 2002 (28th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	511	350	101	35	13	12	32
Boston, Mass.	192	116	47	12	9	8	8
Bridgeport, Conn.	31	24	5	2	-	-	-
Cambridge, Mass.	20	13	5	2	-	-	1
Fall River, Mass.	42	36	6	-	-	-	4
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	28	22	4	2	-	-	5
Lynn, Mass.	17	13	3	1	-	-	1
New Bedford, Mass.	24	21	2	1	-	-	-
New Haven, Conn.	31	23	6	1	-	1	2
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	6	3	2	1	-	-	-
Springfield, Mass.	40	30	5	4	1	-	6
Waterbury, Conn.	32	20	7	3	1	1	1
Worcester, Mass.	48	29	9	6	2	2	4
MID. ATLANTIC	2,118	1,478	437	132	39	32	103
Albany, N.Y.	53	35	12	5	-	1	5
Allentown, Pa.	19	15	3	1	-	-	1
Buffalo, N.Y.	111	82	21	5	-	3	15
Camden, N.J.	21	14	-	3	-	4	-
Elizabeth, N.J.	28	19	9	-	-	-	-
Erie, Pa.	26	19	7	-	-	-	1
Jersey City, N.J.	53	39	11	1	1	1	-
New York City, N.Y.	1,264	876	264	86	25	13	48
Newark, N.J.	64	32	21	4	6	1	1
Paterson, N.J.	28	15	6	3	1	3	1
Philadelphia, Pa.	U	U	U	U	U	U	U
Pittsburgh, Pa.§	51	30	16	1	3	1	4
Reading, Pa.	22	17	3	1	-	1	3
Rochester, N.Y.	147	112	27	6	-	2	13
Schenectady, N.Y.	21	19	1	1	-	-	4
Scranton, Pa.	37	31	6	-	-	-	-
Syracuse, N.Y.	97	72	13	8	3	1	3
Trenton, N.J.	34	22	7	4	-	1	-
Utica, N.Y.	18	12	6	-	-	-	1
Yonkers, N.Y.	24	17	4	3	-	-	3
E.N. CENTRAL	1,405	946	265	90	40	28	82
Akron, Ohio	U	U	U	U	U	U	U
Canton, Ohio	40	27	12	1	-	-	4
Chicago, Ill.	U	U	U	U	U	U	U
Cincinnati, Ohio	U	U	U	U	U	U	U
Cleveland, Ohio	121	77	24	14	4	2	7
Columbus, Ohio	176	122	32	11	4	7	13
Dayton, Ohio	114	78	26	6	3	1	5
Detroit, Mich.	128	78	29	10	7	4	7
Evansville, Ind.	60	47	8	4	1	-	3
Fort Wayne, Ind.	83	60	16	6	1	-	6
Gary, Ind.	17	13	1	1	1	-	-
Grand Rapids, Mich.	33	20	9	1	1	2	3
Indianapolis, Ind.	175	110	18	4	4	4	11
Lansing, Mich.	48	35	10	1	1	1	3
Milwaukee, Wis.	119	80	28	5	4	2	7
Peoria, Ill.	73	35	15	16	6	1	5
Rockford, Ill.	U	U	U	U	U	U	U
South Bend, Ind.	46	32	9	4	1	-	-
Toledo, Ohio	102	76	18	5	1	2	5
Youngstown, Ohio	70	56	10	1	1	2	3
W.N. CENTRAL	432	292	98	30	8	4	39
Des Moines, Iowa	81	60	18	2	1	-	12
Duluth, Minn.	26	18	5	3	-	-	2
Kansas City, Kans.	U	U	U	U	U	U	U
Kansas City, Mo.	75	42	21	9	3	-	6
Lincoln, Nebr.	29	23	3	2	1	-	-
Minneapolis, Minn.	60	42	12	4	1	1	6
Omaha, Nebr.	100	65	22	9	2	2	6
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	61	42	17	1	-	1	7
Wichita, Kans.	U	U	U	U	U	U	U
S. ATLANTIC	1,120	687	266	108	32	26	79
Atlanta, Ga.	74	37	23	10	4	-	2
Baltimore, Md.	167	97	45	14	8	3	11
Charlotte, N.C.	103	60	23	11	4	4	5
Jacksonville, Fla.	167	111	32	20	2	2	21
Miami, Fla.	80	45	16	12	4	3	5
Norfolk, Va.	70	40	18	8	2	2	5
Richmond, Va.	63	41	14	5	2	1	8
Savannah, Ga.	55	33	12	5	-	5	2
St. Petersburg, Fla.	53	39	11	1	1	1	6
Tampa, Fla.	169	119	35	12	1	2	11
Washington, D.C.	102	60	25	10	4	3	3
Wilmington, Del.	17	5	12	-	-	-	-
E.S. CENTRAL	673	452	138	55	15	10	57
Birmingham, Ala.	153	111	28	10	1	-	18
Chattanooga, Tenn.	91	61	22	6	2	-	4
Knoxville, Tenn.	84	51	17	13	2	1	2
Lexington, Ky.	88	58	21	7	2	-	6
Memphis, Tenn.	U	U	U	U	U	U	U
Mobile, Ala.	48	31	10	3	3	1	1
Montgomery, Ala.	49	36	10	2	1	-	7
Nashville, Tenn.	160	104	30	14	4	8	19
W.S. CENTRAL	1,406	911	280	121	62	31	105
Austin, Tex.	83	52	23	6	1	1	2
Baton Rouge, La.	48	29	6	5	5	3	2
Corpus Christi, Tex.	55	35	12	4	3	1	5
Dallas, Tex.	181	106	45	20	7	3	8
El Paso, Tex.	89	60	19	8	1	1	6
Ft. Worth, Tex.	116	76	18	9	5	8	12
Houston, Tex.	360	223	71	33	24	8	34
Little Rock, Ark.	U	U	U	U	U	U	U
New Orleans, La.	44	24	11	5	3	1	-
San Antonio, Tex.	216	147	38	19	10	2	13
Shreveport, La.	74	54	13	5	-	2	8
Tulsa, Okla.	140	105	24	7	3	1	15
MOUNTAIN	832	538	178	68	28	20	50
Albuquerque, N.M.	90	41	19	21	5	4	8
Boise, Idaho	60	38	14	5	2	1	1
Colo. Springs, Colo.	58	44	13	1	-	-	3
Denver, Colo.	118	68	29	13	5	3	6
Las Vegas, Nev.	189	118	50	11	6	4	8
Ogden, Utah	U	U	U	U	U	U	U
Phoenix, Ariz.	U	U	U	U	U	U	U
Pueblo, Colo.	19	15	3	1	-	-	3
Salt Lake City, Utah	144	99	26	9	3	7	9
Tucson, Ariz.	154	115	24	7	7	1	12
PACIFIC	1,671	1,148	338	112	43	30	95
Berkeley, Calif.	20	11	7	1	-	1	4
Fresno, Calif.	113	80	19	10	4	-	8
Glendale, Calif.	23	20	2	1	-	-	-
Honolulu, Hawaii	78	61	14	2	-	1	3
Long Beach, Calif.	91	60	20	6	3	2	7
Los Angeles, Calif.	365	248	73	27	11	6	-
Pasadena, Calif.	24	15	3	4	1	1	1
Portland, Oreg.	112	75	28	4	2	3	4
Sacramento, Calif.	207	145	41	9	5	7	18
San Diego, Calif.	174	107	40	17	6	4	21
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	126	87	29	10	-	-	8
Santa Cruz, Calif.	31	22	6	3	-	-	2
Seattle, Wash.	147	96	31	8	8	4	6
Spokane, Wash.	52	43	6	2	1	-	4
Tacoma, Wash.	108	78	19	8	2	1	9
TOTAL	10,168¶	6,802	2,101	751	280	193	642

U: Unavailable. -:No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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