Hepatitis C Virus Transmission from an Antibody-Negative Organ and Tissue Donor — United States, 2000–2002

In June 2002, a physician reported to the Oregon Department of Human Services (DHS) a case of acute hepatitis C in a patient who had received a patellar tendon with bone allograft from a donor approximately 6 weeks before onset of illness. At the time of the donor's death in October 2000, his serum had no detectable antibody to hepatitis C virus (anti-HCV). The ensuing investigation conducted by CDC and DHS confirmed that the donor, although anti-HCV–negative, was HCV RNA–positive and the probable source of HCV infection for at least eight organ and tissue recipients. This report summarizes the preliminary results of the investigation. Although transmission from anti-HCV–negative tissue donors probably is rare, determining the frequency of transplantations from such donors and the risk for transmitting HCV to recipients is important in evaluating whether additional prevention measures are warranted.

The donor was a man in his 40s with a history of hypertension and heavy alcohol use who died of an intracranial hemorrhage. At the time of death, he had no signs or symptoms of hepatitis, and his alanine aminotransferase and aspartate aminotransferase levels were normal. Physical examination revealed no skin markings indicative of injection-drug use or evidence of liver disease. A questionnaire administered to the donor's next of kin revealed no history of injection-drug use or blood transfusion.

At the time of the donor's death, his serum tested negative for anti-HCV by a second-generation enzyme immunoassay (EIA) (Abbott HCV EIA 2.0, Abbott Laboratories, Abbott Park, Illinois) and negative for human immunodeficiency virus (HIV)-1, HIV-2, human T-lymphotropic virus (HTLV) I, HTLV II, hepatitis B virus, and syphilis. In July 2002, stored, frozen serum obtained premortem from the donor tested negative for anti-HCV with a third-generation EIA (ORTHO® HCV Version 3.0 ELISA, Ortho-Clinical Diagnostics, Raritan, New Jersey) but positive for HCV RNA (AMPLICOR® HCV Test, version 2.0, Roche Molecular Systems, Branchburg, New Jersey). The donor's HCV genotype was 1a, as determined from the 300-nucleotide sequence of the nonstructural coding region NS5b (*1,2*).

A case was defined as laboratory-confirmed HCV infection, with a viral genotype identical to that of the donor, in a recipient not known to have been infected before transplantation. A definite case was defined as one that occurred in a recipient who was both anti-HCV– and HCV RNA–negative before transplantation. A probable case was defined as one that occurred in a recipient for whom no serum was available before transplantation.

The organ procurement and tissue distribution agencies provided an inventory of grafts recovered from the donor and the contact information for each health-care provider or facility that had received grafts. Health-care providers were contacted to obtain clinical information and to arrange for testing of recipients. Recipients' post-transplantation and stored pretransplantation sera, when available, were tested for anti-HCV by EIA 2.0 or 3.0 and for HCV RNA (by using either AMPLICOR® HCV Test, version 2.0, or HCV RNA DetectR™ PLUS by TMA, Specialty Laboratories, Santa Monica, California). Specimens positive for anti-HCV by EIA were tested with a supplemental recombinant immunoblot assay (RIBA®, Chiron Corporation, Emeryville, California). HCV genotype was determined for all HCV RNA–positive samples (*1,2*).

Of 91 organs and tissues recovered from the donor, 44 were transplanted into 40 recipients during October 2000–July 2002. Of the remaining 47 grafts, 44 tissues were removed from distribution in July 2002, and two tissues and one organ had been discarded earlier. Of the 40 recipients, six received organs, 32 received tissues, and two received corneas. Recipients were located in 16 states and two foreign countries. All tissues had been treated with surface chemicals or antimicrobials. Bone grafts also underwent gamma irradiation.

Eight cases were identified among the 40 recipients; all cases were HCV genotype 1a. Among the six organ recipients, post-transplantation serum was available for three, and definite cases occurred in all three. Of the 32 tissue recipients, three were known to have been HCV-infected before transplantation, and test results were not available for another two (one bone and one tendon with bone recipient). Among the remaining 27 tissue recipients, five probable cases occurred: in one of two recipients of saphenous vein, in one of three recipients of tendon, and in all three recipients of tendon with bone (including the index patient). One other recipient was found to be HCV-infected after transplantation with genotype 3a. No cases occurred in recipients of skin (n = two) or irradiated bone (n = 16). Of the two cornea recipients, one was infected before transplantation. The other recipient was anti-HCV–negative; however, as of March 27, HCV RNA testing had not been performed.

Reported by: *PR Cieslak, MD, K Hedberg, MD, AR Thomas, MD, MA Kohn, MD, Oregon Dept of Human Svcs. F Chai, PhD, OV Nainan, PhD, IT Williams, PhD, BP Bell, MD, Div of Viral Hepatitis, National Center for Infectious Diseases; BD Tugwell, MD, PR Patel, MD, EIS officers, CDC.*

Editorial Note: This report describes transmission of HCV by tissues and organs from a donor whose serum tested anti-HCV–negative at the time of death. However, stored serum tested subsequently was HCV RNA–positive. The donor was the probable source of HCV infection for at least eight recipients of organs or tissues. All cases occurred in recipients of organs or soft tissues; no infections were found among those who had received skin or irradiated bone.

HCV transmission from tissue donors has been reported infrequently; the only tissue types reported previously to transmit HCV are nonirradiated bone and tendon with bone (*3–5*). By contrast, transplanted organs from infected donors are known to carry a high risk for transmitting HCV (*6*).

At the time of death, the donor probably was in the 8–10 week window period between infection with HCV and development of a detectable HCV-antibody response (*7*). Although available data are limited, HCV transmission by organ and tissue donors during this period appears to be uncommon; only one previous report describes HCV transmission from a tissue donor in whom anti-HCV testing (using a less sensitive first-generation assay) was negative (*3*). The frequency of transplantation from antibody-negative, HCV RNA–positive organ and tissue donors is not known. However, among voluntary blood donors, whose characteristics probably differ from those of organ and tissue donors, approximately four per 1,000,000 blood donations are from donors who are anti-HCV–negative and HCV RNA–positive (*8*).

Donor screening is the primary means of preventing transmission of viral infections from organs and tissues. The Food and Drug Administration (FDA) and the Health Resources and Services Administration (HRSA) provide regulatory guidance or oversight for screening of tissue and organ donors. In addition, organ procurement organizations are required by the Centers for Medicare & Medicaid Services to ensure that appropriate donor screening tests are performed by a laboratory certified in accordance with the Clinical Laboratory Improvement Amendments of 1988. The donor screening process includes medical chart review, interview of the donor's next of kin, physical assessment, and testing of donor serum. Guidelines require that organ and tissue donors be tested for anti-HCV.

Nucleic acid testing (NAT) to detect HCV RNA among organ and tissue donors is not performed routinely and has several limitations. Organ viability declines rapidly as a function of time after donor death. Because NAT often is not immediately accessible and can require 1–2 days to complete, it might be impractical in the setting of organ transplantation. By contrast, tissues often can be stored for months to years before use, allowing ample time for NAT. However, postmortem serum frequently is the only sample available for testing from tissue donors. NAT to detect HCV RNA has not been approved by FDA for use on serum samples obtained postmortem, and the performance of available assays in this setting has not been evaluated.

Tissue processing methods (e.g., gamma irradiation) might affect the likelihood of transmission of HCV and other viruses from infected donors (*3,9*). In this investigation, no cases occurred in recipients of irradiated bone. Irradiation is not applied routinely to all tissue types because it can impair tissue structural integrity.

This investigation was initiated by a clinician who suspected allograft-associated HCV transmission and alerted the state health department. When a new case of hepatitis C is diagnosed in a recent tissue or organ recipient, health-care providers should notify local or state health departments promptly so an investigation can be initiated and, if necessary, tissues can be recalled to prevent further transmission. Centers performing transplantation should maintain adequate records of graft recipients to facilitate investigations of allograft-associated infections.

CDC, in collaboration with FDA and HRSA, will determine whether changes in organ and tissue donor screening guidelines are warranted. Assessing the performance of available NAT and anti-HCV assays in postmortem specimens would provide essential information about the period during which donor screening can be performed reliably. Although transmission from anti-HCV–negative tissue donors probably is rare, determining the frequency of transplantations from such donors and the risk for transmitting HCV to recipients will be useful for evaluating the benefits and limitations of additional prevention measures.

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(rek-ə-mən-'dā-shən) 1 : something, such as a course of action, that is recommended; see also *MMWR*.

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Public Health and Aging

Nonfatal Fall-Related Traumatic Brain Injury Among Older Adults — California, 1996–1999

In the United States, falls are the second leading cause of traumatic brain injury (TBI) hospitalizations overall and the leading cause of TBI hospitalizations among persons aged ≥65 years (*1*). In 1995, TBIs resulted in an estimated $56 billion in direct and indirect costs in the United States (*2*). In California, during 1999, a total of 61,475 hospitalizations from falls were reported among persons aged >65 years (3). Risk factors for falling among older persons included arthritis; impairments in balance, gait, vision, and muscle strength; and the use of four or more prescription medications (*2,4*). As part of CDC's program of state-based TBI surveillance, California hospital discharge data were collected and analyzed to describe fall-related TBIs. This report summarizes the results of that analysis, which support previous findings that persons aged ≥65 years are at risk for hospitalization for a fall and that same-level falls are far more common among persons aged ≥65 years than falls from a higher level (e.g., a ladder, chair, or stair) (*1,2,5*). Defining the circumstances of fall injuries and recognizing the type of fall leading to TBI hospitalizations among older persons can help health-care providers conduct risk assessment and management of falls in this population.

All nonfederal, acute care hospitals in California are required to report hospital discharges to the Office of Statewide Health Planning and Development. All first admissions with an injury diagnosis must be coded for external cause of injury (E-code); E-codes are listed in >99% of these records (*5*). For this report, cases were limited to first admissions. Hospitalization records of transfers, fatal cases, and out-of-state residents were excluded by matching sex, date of birth, and a record linkage number (i.e, an encrypted social security number). Hospital discharge records were coded according to the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) (*6*). TBI cases were defined by the most recent CDC surveillance definition, in which any of the 25 diagnoses include one of the following nature-of-injury diagnosis codes: 800.0–801.9 (fracture of the vault of the skull), 803.0–804.9 (other and unqualified skull fracture), 850.0–854.1 (intracranial injury including concussion, laceration, and hemorrhage), or 959.01 (head injury, unspecified). The primary cause of injury for falls (E880–E886, E888) was analyzed by mechanism.* Age was categorized into one younger comparison group (aged 0–64 years) and three older groups (aged 65–74 years, 75–84 years, and ≥85 years). Incidence rates were calculated per 100,000 population by using mid-year population estimates of California residents for each year (Epidemiology and Prevention for Injury Control, California Department of Health Services, unpublished data, 1996–1999).

During 1996–1999, a total of 29,761 fall-related TBI hospitalizations were reported; of these, 28,009 (94%) patients were discharged, and 1,752 were deceased. A total of 1,252 (71%) of fatal fall-related TBI hospitalizations were among those aged ≥65 years. Overall, the nonfatal fall-related TBI hospitalization rate was 21.1 per 100,000 population (95% confidence interval = 20.8–21.3) (Table 1). Hospitalization rates increased with age; the highest rate (223.0) was among persons aged ≥85 years. Compared with persons aged 0–64 years, the rate ratio of hospitalizations was 3.1 for persons aged 65–74 years, 7.6 for those aged 75–84 years, and 16.4 for those aged ≥85 years. Overall, males were hospitalized more frequently (59%) than females. Although 70% of hospitalizations among those aged <65 years were among males, females accounted for 56% of hospitalizations among those aged ≥65 years. For those aged ≥65 years, whites represented 78% of hospitalizations and had the highest rate (25.4) among all racial/ethnic populations.

In 9,364 (33%) hospitalizations, the type of fall was coded "other and unspecified" (E888). Among the 18,645 specified falls, the pattern differed by age group (Table 2). Among persons aged 0–64 years, 75% of falls were from at least one level. Among persons aged ≥65 years, 60% of falls were on the same level. For the three older population groups, the

* E880 (fall on or from stairs or steps); E881 (fall on or from ladders or scaffolding); E882 (fall from or out of structure); E883 (fall into opening in surface); E884 (other fall from one level to another); E885 (fall on same level from slipping, tripping, or stumbling); E886 (fall on same level from collision, pushing, or shoving, by or with other person); and E888 (other and unspecified fall).

TABLE 1. Number and rate* of hospitalizations for nonfatal fall-related traumatic brain injuries, by selected characteristics — California, 1996–1999

	0–64 yrs		65–74 yrs		75–84 yrs		≥85 yrs		Total		
Characteristic	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**(95% CI†)**
Year											
1996	3,800	13.2	788	40.3	1,116	96.1	786	211.8	**6,490**	**20.0**	**(19.6–20.6)**
1997	3,818	13.0	671	34.4	1,084	89.9	776	198.2	**6,349**	**19.3**	**(18.8–19.8)**
1998	4,252	14.2	908	46.6	1,408	113.9	962	236.7	**7,530**	**22.5**	**(22.0–23.1)**
1999	4,244	13.9	892	45.8	1,464	115.0	1,040	242.4	**7,640**	**22.4**	**(22.0–23.0)**
Total	**16,114**	**13.6**	**3,259**	**41.8**	**5,072**	**104.0**	**3,564**	**223.0**	**28,009**	**21.1**	**(20.8–21.3)**
Sex											
Male	11,253	18.6	1,764	49.9	2,263	114.7	1,164	236.5	**16,444**	**24.7**	**(24.3–25.1)**
Female	4,861	8.4	1,495	35.1	2,809	96.8	2,400	217.0	**11,565**	**17.5**	**(17.2–17.8)**
Race/Ethnicity§											
White	8,418	14.3	2,213	40.9	3,969	107.8	2,915	241.8	**17,515**	**25.4**	**(25.1–25.8)**
Black	1,195	14.0	149	35.9	163	71.6	89	129.0	**1,596**	**17.2**	**(16.5–18.2)**
Hispanic	5,025	13.5	490	41.5	456	83.3	279	140.4	**6,250**	**15.9**	**(15.6–16.3)**
Asian/Pacific Islander	845	6.3	307	40.6	378	95.0	202	174.1	**1,732**	**11.8**	**(11.3–12.4)**
American Indian/ Alaska Native	57	7.9	7	—¶	6	—	3	—	**73**	**9.2**	**(8.2–13.1)**

* Per 100,000 population.
† Confidence interval.
§ Race/ethnicity data not available in 3% of records.
¶ Rates not calculated for <20 cases.

TABLE 2. Number and rate* of hospitalizations for nonfatal fall-related traumatic brain injuries, by age group and fall type — California, 1996–1999

	0–64 yrs		65–74 yrs		75–84 yrs		≥85 yrs		Total		
Characteristic	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**(95% CI†)**
E880 (from stairs/steps)	1,242	1.0	256	3.3	386	7.9	201	12.6	**2,085**	**1.6**	**(1.5–1.6)**
E881 (from ladders)	1,099	0.9	219	2.8	124	2.5	19	—§	**1,461**	**1.1**	**(1.0–1.2)**
E882 (from structure)	1,773	1.5	55	0.7	40	0.8	6	—	**1,874**	**1.4**	**(1.3–1.5)**
E883 (into opening)	80	0.1	0	—	4	—	1	—	**85**	**0.06**	**(0.05–0.08)**
E884 (one level to another)	5,120	4.3	329	4.2	474	9.7	359	22.5	**6,282**	**4.7**	**4(.6–4.8)**
E885 (same level)	2,710	2.3	945	12.1	1,608	33.0	1,165	72.9	**6,428**	**4.8**	**(4.7-5.0)**
E886 (with other person)	402	0.3	12	—	10	—	6	—	**430**	**0.3**	**(0.3–0.4)**
E888 (other, unspecified)	3,688	3.1	1443	18.5	2,426	49.8	1,807	113.1	**9,364**	**7.0**	**(6.9–7.2)**

* Per 100,000 population.
† Confidence interval.
§ Rates not calculated for <20 cases.

proportion of specified falls on the same level also varied: 52% among persons aged 65–74 years, 61% among those aged 75–84 years, and 66% among those aged ≥85 years. By race/ethnicity for all age groups, the proportion of specified falls on the same level was 40% for whites, 31% for blacks, 23%† for Hispanics, 36% for Asians/Pacific Islanders, and 33% for American Indians/Alaska Natives.

Among persons aged 0–64 years, 13,792 (86%) were discharged with only self-care or unskilled care provided. The remainder were sent to another facility or discharged with in-home health services or outpatient rehabilitation. Among persons aged ≥65 years, the number discharged was 4,927 (41%). The proportion of persons discharged home decreased with increasing age. For those aged ≥85 years, the number discharged was 1,071 (30%) compared with 2,083 (41%) for those aged 75–84 years and 1,773 (54%) for those aged 65–74 years.

Reported by: *J Cross, PhD, R Trent, PhD, Epidemiology and Prevention for Injury Control, California Dept of Health Svcs. N Adekoya, DrPH, Div of Surveillance Systems and Informatics, Epidemiology Program Office, CDC.*

Editorial Note: In California, fall-related TBIs have a substantial impact on the health-care delivery system. Among those aged ≥85 years, three out of five hospitalizations resulted in a discharge to a residential facility with skilled nursing or to an in-home health service with outpatient rehabilitation services. Among older persons, an estimated annual average of 3,000 nonfatal falls results in hospitalizations for

† A total of 97% of Hispanic fall injury patients of known race are classified as white.

TBI at an estimated cost of $50 million[§]. Studying the nature of these injuries and demographic risk factors might inform intervention strategies. However, few reports have been published regarding hospitalizations for fall-related TBIs (*1,2*).

The overall rate of hospitalized TBI falls observed in California (21.1) is similar to the combined incidence rate of hospitalized TBI falls (23.3) reported by Colorado, Missouri, Oklahoma, and Utah (*1*). Although the number of patients who returned to their pre-injury level of functioning is unknown, TBI often results in lifelong neurologic, psychological, and cognitive conditions requiring rehabilitation therapy and other treatment (*7*). This study indicates that for older adults, these injuries often result in death or impairment.

Rates of fall-related TBI are historically higher in males (*8*). In this study, rates observed in males also exceeded those of females in every age group, compared with all fall injury rates (i.e., those including other injuries in addition to TBI), which usually are higher for females (*5*). The reasons for this difference are unclear.

Adults aged ≥65 years have elevated TBI hospitalization rates (*1*). Older persons are at increased risk for fall-related TBI hospitalizations for at least three reasons. First, older persons are more likely to have chronic diseases and to use more medications whose adverse effects can lead to falls (*4,9,10*). Certain medications (e.g., sedatives, benzodiazepines, anticonvulsants, and antihypertensives) might cause dizziness, drowsiness, and postural hypotension (*4,10*). Second, even without medication effects, older adults might have impaired balance, slower reaction times, and decreased muscle strength, all of which can lead to more frequent falls. Finally, older adults who fall often sustain more severe head injuries than their younger counterparts (*5*). Falls are a major cause of intracranial lesion among older persons because of their greater susceptibility to acute subdural hematoma (*10*).

The findings in this report are subject to at least four limitations. First, because TBI cases were identified when any of the 25 diagnoses included a TBI diagnosis code, TBI might not be the primary reason for hospital admission or even the most serious problem. In this report, 21,593 (77%) of cases had TBI as the primary diagnosis. Second, the data source did not include intrinsic risk factors such as medications, comorbidities, or physical condition. Third, one third of TBI patients did not specify the type of fall, making it difficult to characterize what type of falls cause TBI. Finally, hospitalization records were not reviewed to validate the E-codes for fall-related TBI.

[§] Average charges (including all inpatient charges except physician fees) for a fall hospitalization in California in 1999 are $17,086 (*4*).

Falls are a major cause of TBI in older persons. As the population of older persons in the United States continues to grow, the number of TBIs also is likely to grow. Recent clinical trials have identified fall prevention strategies that are effective in reducing the number of falls (e.g., balance and gait training, strength exercise programs, discontinuation of psychotropic medication, and reduction in home hazards after hospitalization) (*4*). Integration of these strategies into public health programs might reduce TBI-related morbidity and health-care costs.

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Update: Adverse Events Following Smallpox Vaccination — United States, 2003

During January 24–March 28, 2003, smallpox vaccine was administered to 29,584 civilian health-care and public health workers in 54 jurisdictions as part of an effort to prepare the United States for a terrorist attack using smallpox virus. This report summarizes data on ten cases of cardiac adverse events reported among civilian vaccinees since the beginning of the smallpox vaccination program, including three new cardiac adverse events reported to CDC from the Vaccine Adverse Event Reporting System (VAERS) during March 24–30. Fourteen cases of myocarditis and one fatal myocardial infarction

have been reported among military personnel. This report summarizes data on the three new cases of cardiac adverse events, updates data on seven previously reported cases among civilian vaccinees (Table 1) (*1*), summarizes selected cases of cardiac adverse events among military vaccinees, and updates information on all adverse events reported in the civilian vaccination program as of March 30.

CDC, the Food and Drug Administration, and state health departments are conducting surveillance for vaccine-associated adverse events among civilian vaccinees; the Department of Defense (DoD) is conducting surveillance for vaccine-associated adverse events among military vaccinees. In the first stage of the civilian program, active surveillance is being conducted for any adverse events after vaccination that require medical care. In the military vaccination program, military personnel receive medical care primarily in a network of linked clinics, which report adverse events to medical headquarters and VAERS.

Civilian Case Reports

The three new cases of cardiac adverse events among civilians during March 24–30 include two cases of myopericarditis and one case of myocardial infarction (Table 1).

Case 1. A man aged 56 years with a history of mild hypertension and hypertriglyceridemia was revaccinated on March 4. On March 16, he had onset of influenza-like illness (ILI), chest discomfort while lying flat, and pleuritic pain during inspiration; a clinical examination revealed tachycardia. During the next 7 days, he had chest pain, dyspnea on exertion, fever, chills, pallor, and left knee pain. All symptoms and signs had resolved 17 days after vaccination. On day 23 post vaccination, an electrocardiogram (ECG) indicated low R waves in the anterior leads, and borderline first-degree AV block (PR interval: 0.21 msec). Echocardiogram revealed widening of the pericardial space with minimal fluid collection, a normal ejection fraction, and normal ventricular wall function. Chest radiograph demonstrated left basilar atelectasis. The patient had normal troponin I, creatine kinase myocardial band (CK-MB), C-reactive protein levels, and a normal erythrocyte sedimentation rate. These findings are consistent with mild myopericarditis. The patient recovered; a follow-up exercise cardiac perfusion scan was normal.

Case 2. A woman aged 32 years with no history of cardiac disease or major risk factors for coronary artery disease was vaccinated for the first time on January 31. On February 16, she had fever, crushing-type chest pain, and shortness of breath, which prompted a visit to the emergency department (ED). An ECG indicated nonspecific ST-T wave changes; cardiac enzymes were normal. A repeat ECG several days later was normal. After 5–6 days, her symptoms resolved completely, and she was able to resume normal activities. Six weeks after vaccination, a nuclear stress test was normal. Her clinical course and ECG findings were consistent with myopericarditis.

Case 3. An active man aged 64 years with a history of dyspnea on exertion and productive cough for 3 months and eight previous smallpox vaccinations was revaccinated on March 21. On March 23, he sought medical care for chest "fullness" and dizziness. Blood tests indicated elevated troponin I and CK-MB levels. ECG demonstrated inferior ST segment depression and T wave inversion. Echocardiography indicated moderate inferior wall hypokenesis with a normal ejection fraction. Coronary arteriography showed three-vessel atherosclerotic disease with development of some collateral circulation. The patient underwent cardiac catheterization with ballon atherotomy, and two coronary artery stents were placed. The clinical course and laboratory findings are consistent with acute myocardial infarction in a patient with chronic coronary artery disease. He returned to work on March 31.

TABLE 1. Civilian vaccinees with cardiac adverse events — United States, January 24–March 30, 2003

Age	Sex	Interval* (days)	Diagnosis†	Underlying risk factors/ History of cardiac or other vascular disease	Previous smallpox vaccination	Status
55	F	5	Myocardian infarction	Hypercholesterolemia, hypertension, smoking	unknown	deceased
57	F	17	Myocardian infarction	Hypertension, smoking, transient ischemic attack, carotid endarterectomy	yes	deceased
54	F	9	Myocardian infarction	Diabetes, hyperlipidemia, hypertension	yes	alive
64	M	2	Myocardian infarction	Atherosclerotic coronary artery disease, dyspnea on exertion	yes	alive
60	M	4	Angina	Exertional chest pain, hyperlipidemia, hypertension	unknown	alive
43	F	4	Angina	None	yes	alive
45	F	2	Myocarditis	Hypertension	yes	alive
45	M	17	Myopericarditis	Hypertension	yes	alive
32	F	15	Myopericarditis	None	unknown	alive
56	M	12	Myopericarditis	Hyperlipidemia, hypertension	yes	alive

*Time from receipt of smallpox vaccine to onset of first reported symptoms.
†Myocardial infarction and angina represent cases of ischemia.

Update on Previous Civilian Cardiac Adverse Events

On March 23, a woman aged 55 years with a history of hypertension, hypercholesterolemia, and smoking died 5 days after smallpox vaccination (*1*). Autopsy showed extensive atherosclerotic disease, with right coronary artery thrombosis and lateral wall softening. Preliminary testing, including real-time polymerase chain reaction (PCR) and immunohistochemistry, showed evidence of vaccinia virus only at the vaccination site; limited analyses of other tissues, including heart and other visceral tissue, were negative for vaccinia virus by real-time PCR and immunohistochemistry.

On March 26, a woman aged 57 years with a history of smoking, hypertension, transient ischemic attack, and carotid endarterectomy died 22 days after smallpox vaccination (*1*). Autopsy showed extensive atherosclerosis of the coronary arteries, and a large healing infarct involving the posterior wall of the left ventricle and intraventricular septum. Histopathologic evaluation revealed no evidence of myocarditis or pericarditis. Preliminary analysis using real-time PCR tests showed evidence of vaccinia virus DNA at the vaccination site but not in affected myocardium and other viscera.

Military Case Reports

During March 25–31, four cases of myocarditis and/or pericarditis were identified, totaling 14 cases among approximately 250,000 personnel who received smallpox vaccination for the first time. No cases of myocarditis and/or pericarditis were identified among approximately 115,000 service members who were revaccinated. Among the approximately 365,000 vaccinated military service members, one death has been reported.

The 14 patients with myocarditis and/or pericarditis ranged in age from 21 to 33 years. Severity ranged from mild (no ECG or echocardiogram changes) to severe (congestive heart failure), with onset 7 to 19 days after vaccination. All military patients were hospitalized, and all survived. As of April 2, the patient with the most severe case has been hospitalized for 6 days. All other hospitalized patients have been discharged; they have either returned to duty or are on short-term convalescent leave. Following are two cases that represent the spectrum of clinical presentations of myopericarditis and a report of a fatal case of myocardial infarction.

Case 1. On March 18, a man aged 22 years sought medical care at a military health clinic for chest pain 12 days after primary smallpox vaccination. He was treated with nonsteroidal anti-inflammatory agents for presumed costochondritis. When laboratory tests revealed elevated cardiac enzymes levels, he was referred to a university hospital emergency department (ED) for further evaluation. Cardiac enzymes levels remained elevated, but an ECG, echocardiogram, and cardiac stress test were normal. Myopericarditis was diagnosed, and he was released that day in good condition.

Case 2. A man aged 29 years had ILI symptoms during the same week of primary smallpox vaccination. At the time of smallpox vaccination on March 8, he also received five other inactivated vaccines; 19 days after vaccination, he sought treatment at an ED for dyspnea while lying flat. On March 28, he was hospitalized and had myopericarditis diagnosed based on ECG findings and elevated troponin I and CK-MB. The next day, he had pulmonary edema with a pulmonary artery wedge pressure of 38 mmHg that responded well to several doses of intravenous diuretics. Serial echocardiograms showed ejection fractions as low as 25% that subsequently improved to 45% (normal: >55%). Endomyocardial biopsy revealed active myocarditis with a mixed infiltrate of lymphocytes and eosinophils and evidence of eosinophilic degranulation in proximity to myocyte necrosis. PCR testing of myocardial tissue was negative for vaccinia virus DNA, varicella-zoster virus DNA, and herpes simplex virus DNA; reverse transcriptase PCR was negative for enterovirus RNA. As of April 2, he remained hospitalized but was stable and improving.

Case 3. On March 25, an Army National Guardsman aged 55 years with a history of smoking and treatment for hyperlipidemia was found unresponsive in a vehicle 5 days after receiving smallpox vaccine and two other inactivated vaccines. He was resuscitated but died the next day. Autopsy showed acute thrombosis of the right anterior descending coronary artery, three-vessel coronary artery disease with 75%–80% occlusion, left ventricular hypertrophy, and cardiomegaly. Histopathology of left ventricular myocardium revealed no evidence of myocarditis or pericarditis. Virologic testing of myocardium is pending. The cause of death was acute myocardial infarction.

Update on Adverse Events in the Civilian Vaccination Program

As of March 30, no cases of several potentially life-threatening adverse events associated historically with smallpox vaccination (i.e., progressive vaccinia, eczema vaccinatum, post-vaccinial encephalitis, or encephalomyelitis) have been reported among civilians. In addition, no cases of vaccinia transmission from civilians have been reported. This includes no transmission from 18,344 members of health-care teams, 6,655 of whom have been followed for >1 month.

During March 11–30, six cases of generalized vaccinia, 14 cases of inadvertent inoculation (nonocular), and four cases of myopericarditis were reported (Table 2). During the same

period, 12 other serious adverse events were reported. Of these, four were myocardial infarctions, and two were cases of angina (Table 3). The remaining six other new serious adverse events had hospital discharge diagnoses of pancreatic cancer, urinary tract infection, herpes zoster virus infection, headache, and facial paralysis with paresthesias (Table 3). Among the 192 vaccinees with reported other nonserious adverse events during January 24–March 30 (Table 3), the most common signs and symptoms were fever (n = 42), rash (n = 39), headache (n = 34), and pruritus (n = 32). All of these commonly reported events are consistent with mild expected reactions after receipt of smallpox vaccine. Some vaccinees reported multiple signs and symptoms. During March 11–30, no vaccinia immune globulin was released for civilian vaccinees (Table 4).

Surveillance for adverse events during the civilian and military smallpox vaccination programs is ongoing; regular surveillance reports will be published in *MMWR*.

Reported by: *Smallpox vaccine adverse events coordinators. Military Vaccine Agency, Army Medical Command, U.S. Dept of Defense. National Center for Infectious Diseases. National Immunization Program.*

Editorial Note: New reports of myopericarditis following smallpox vaccination are consistent with previous reports

TABLE 2. Number of cases* of selected adverse events associated with smallpox vaccination among civilians, by type — United States, January 24–March 30, 2003

Adverse events	No. new cases (March 11–30)			Total no. cases (January 24–March 30)		
	Suspected†	Probable§	Confirmed¶	Suspected†	Probable§	Confirmed¶
Eczema vaccinatum	—**	—	—	—	—	—
Erythema multiforme major (Stevens-Johnson syndrome)	—	—	NA††	—	—	NA
Fetal vaccinia	—	—	—	—	—	—
Generalized vaccinia	5	—	1	**6**	—	**1**
Inadvertent inoculation, nonocular	14	—	—	**15**	—	**2**
Myocarditis/Pericarditis	1	3	—	**1**	**3**	—
Ocular vaccinia	—	—	—	—	—	**2**
Postvaccinial encephalitis or encephalomyelitis	—	—	NA	—	—	NA
Progressive vaccinia	—	—	—	—	—	—
Pyogenic infection of vaccination site	—	—	—	—	—	—

* Under investigation or completed as of March 30, 2003; numbers and classifications of adverse events will be updated regularly in *MMWR* as more information becomes available.
† Classified as suspected if they have clinical features compatible with the diagnosis, but either further investigation is required, or additional investigation of the case did not provide supporting evidence for the diagnosis and did not identify an alternative diagnosis.
§ Classified as probable if possible alternative etiologies are investigated and supportive information is available.
¶ Classified as confirmed if virologic tests are positive.
** No cases reported.
†† Not applicable.

TABLE 3. Number of cases* of other adverse events reported after smallpox vaccination among civilians, by severity — United States, January 24–March 30, 2003

Adverse events	No. new cases (March 11–30)	Total no. cases (January 24–March 30)
Other serious adverse events†	12§	**20**
Other nonserious adverse events¶	116	**192**

* Under investigation or completed as of March 30, 2003; numbers and classifications of adverse events will be updated regularly in *MMWR* as more information becomes available.
† Events that result in hospitalization, permanent disability, life-threatening illness, or death; these events are associated temporally with smallpox vaccination but are not necessarily associated causally with vaccination.
§ Includes myocardial infarction (n = four), angina (n = two), headache (n = two), pancreatic cancer (n = one), urinary tract infection (n = one), herpes zoster virus infection (n = one), and facial paralysis and paresthesias (n = one).
¶ Include expected self-limited responses to smallpox vaccination (e.g., fatigue, headache, pruritis, local reaction at vaccination site, regional lymphadenopathy, lymphangitis, fever, myalgia and chills, and nausea); additional events are associated temporally with smallpox vaccination but are not necessarily associated causally with vaccination.

TABLE 4. Number of vaccinia immune globulin releases and vaccinia transmissions to contacts — United States, January 24–March 30, 2003

Adverse events	No. new cases (March 11–30)	Total no. cases (January 24–March 30)
Vaccinia immune globulin release	0	**1**
Vaccinia transmission to contacts*		
Health-care settings	0	**0**
Other settings	0	**0**

* No cases of transmission from civilian vaccinees have been reported. Six cases of transmission from military personnel to civilian contacts have been reported.

describing a potential causal association between vaccination and myopericarditis (*1*). One new case of myocardial infarction among civilian vaccinees and one death from myocardial infarction among military vaccinees have been reported, but any association between smallpox vaccine and ischemic heart disease remains unclear.

Myopericarditis is often asymptomatic or mild, but can be severe. Symptomatic patients report chest pain, fatigue, fever, palpitations, and dyspnea on exertion. The patient with myopericarditis and congestive heart failure reported by DoD illustrates the potential severity of the condition, which can lead to severe cardiac dysfunction or dysrhythmia. In addition, rare fatal cases of myocarditis after smallpox vaccination have been reported in Europe and Australia (*2,3*). Evaluation and follow-up guidelines are being developed by CDC to assist health-care providers in managing vaccinees with cardiac adverse events.

Preliminary autopsy findings for the three patients with myocardial infarction who died showed no evidence of disseminated vaccinia infection or myopericarditis. Although virologic testing of myocardial tissue is pending for one patient and is limited for the other two, these findings suggest the ischemic events in these patients did not result from vaccinia-associated myocarditis. The number of reported deaths from cardiac disease among civilians and military personnel is consistent with expected background rates (*1*). However, it is not known whether smallpox vaccination could contribute to these events through another mechanism.

On the basis of the civilian and military cases, and guidance from the Advisory Committee on Immunization Practices (*4*) and an independent group of cardiology consultants, CDC revised its recommendations for screening and exclusion of potential smallpox vaccine recipients. Persons should be excluded from the pre-event smallpox vaccination program if they have had heart disease or any type of ischemic cardiovascular disease diagnosed, with or without symptoms (e.g., previous myocardial infarction, angina, congestive heart failure, cardiomyopathy, stroke or transient ischemic attack, or other heart conditions under the care of a doctor). Persons also should be excluded if they have three or more risk factors: hypertension, diabetes, hypercholesterolemia, smoking, or an immediate family member who had onset of a heart condition before age 50. To date, five of the six vaccinated civilians with cardiac adverse events indicative of ischemic heart disease met these exclusion criteria.

References

1. CDC. Cardiac adverse events following smallpox vaccination—United States, 2003. MMWR 2003;52:248–50.
2. Feery BJ. Adverse reactions after smallpox vaccination. Med J Aust 1997;2:180–3.
3. Dalgaard JB. Fatal myocarditis following smallpox vaccination. Am Heart J 1957;54:156–7.
4. CDC. Supplemental recommendations of adverse events following smallpox vaccine in the pre-event vaccination program: recommendations of the Advisory Committee on Immunization Practices. MMWR 2003;52:282–4.

Notice to Readers

Supplemental Recommendations on Adverse Events Following Smallpox Vaccine in the Pre-Event Vaccination Program: Recommendations of the Advisory Committee on Immunization Practices

The Advisory Committee on Immunization Practices (ACIP) has issued recommendations previously for use of smallpox vaccine (*1*) and supplemental recommendations for use of smallpox vaccine in the pre-event civilian vaccination program (*2*). On March 28, 2003, CDC reported cases of cardiac adverse events among persons vaccinated recently with smallpox vaccine (*3*). In response to these reports, ACIP held an emergency meeting on March 28 to make recommendations to CDC about medical screening of potential vaccinees and follow-up of persons with cardiovascular risk factors after vaccination. These recommendations supplement those previously issued by ACIP (*1,2*).

As of March 28*, a total of 10 cases of myopericarditis had been reported among approximately 240,000 primary vaccinees in the military vaccination program, and two such cases (one of myocarditis and one of pericarditis) had been reported among civilian vaccinees (*3*). No cases of myopericarditis had been reported among approximately 110,000 military revaccinees. Patients whose cases were reported to the U.S. Department of Defense had onset 7–12 days after vaccination and had illness diagnosed based on clinical features, laboratory studies, and electrocardiographic or echocardiographic features. Compared with the rate reported in an unvaccinated military population during 1998–2000, the rate of myopericarditis is substantially elevated (U.S. Department of Defense, unpublished data, 2001).

As of March 28, CDC had received reports of five civilian patients with cardiac ischemic events after smallpox vaccination, including three patients with myocardial infarctions and two patients with angina. The five patients with ischemic events ranged in age from 43 to 60 years, and four of the five were aged ≥54 years; four were women. Four of the five had

* Data were current at the time of the ACIP meeting. Cases reported after March 28 will be included in subsequent reports of adverse events.

"The wisest mind has something yet to learn."

George Santayana

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underlying cardiovascular risk factors. One had known cardiovascular disease, and two others had histories of chest pain (not clearly identified as cardiac in origin on the basis of available information). Two patients died, both from myocardial infarctions with out-of-hospital cardiac arrests. Onset of cardiac symptoms occurred 4, 4, 5, 9, and 17 days after vaccination in the five patients; the patient who experienced a cardiac arrest 17 days after vaccination had symptoms of nausea, dizziness, shortness of breath, fever, and productive cough 5 days after vaccination. Two patients were revaccinees, but the previous vaccination status of the other patients is unknown; all were children at a time when the majority of children in the United States received smallpox vaccine. The two deaths due to cardiac disease among civilian vaccinees are similar to the numbers expected among persons in these age groups in the general population in the absence of vaccination (*3*). The military reported an additional case of a myocardial infarction and out-of-hospital cardiac arrest in a man aged 55 years with multiple cardiac risk factors; the cardiac arrest occurred 5 days after vaccination (U.S. Department of Defense, personal communication, 2003).

These data are consistent with a causal relation between myocarditis/pericarditis and smallpox vaccination, but no causal association between the ischemic cardiac events and smallpox vaccination has been identified. In response to these reports, CDC issued a health advisory on March 26, recommending as a precautionary measure that persons with known cardiac disease not be vaccinated as response team members in the pre-event smallpox vaccination program at this time (*4*). Persons receiving smallpox vaccine should be informed that myopericarditis is a potential complication of smallpox vaccination and that they should seek medical attention if they develop chest pain, shortness of breath, or other symptoms of cardiac disease within 2 weeks after vaccination.

ACIP recommends that persons be excluded from the pre-event smallpox vaccination program who have known underlying heart disease, with or without symptoms, or who have three or more known major cardiac risk factors (i.e., hypertension, diabetes, hypercholesterolemia, heart disease at age 50 years in a first-degree relative, and smoking). ACIP supported including these risk factors in prevaccination education materials so that potential vaccinees can evaluate their risk status, if they have concerns, with their personal physician before reporting for vaccination; at the vaccination clinic, verbal screening for known risk factors is recommended. In response to these recommendations, prevaccination screening forms and other materials have been revised; these

materials have been provided to state health departments and are available at http://www.bt.cdc.gov/agent/smallpox.

ACIP did not recommend special medical follow-up for persons with cardiovascular risk factors who have been vaccinated. Persons with risk factors or known atherosclerotic coronary artery disease should be cared for by their physicians in accordance with standard guidelines for treatment and control of these conditions, such as those issued by the National Cholesterol Education Program Expert Panel and other expert groups (*5*).

References

1. CDC. Vaccinia (smallpox) vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2001. MMWR 2001;50(No. RR-10).
2. CDC. Recommendations for using smallpox vaccine in a pre-event vaccination program: supplemental recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Healthcare Infection Control Practices Advisory Committee (HICPAC). MMWR 2003;52(Dispatch). Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/m2d226.htm.
3. CDC. Cardiac adverse events following smallpox vaccination—United States, 2003. MMWR 2003;52:248–50.
4. CDC. Smallpox: people with known cardiac disease should not be vaccinated. CDC Advisory 00129.
5. Expert Panel on Detection, Evaluation, and Treatment of High Blood Pressure in Adults. Executive summary of the Third Report of the National Cholesterol Education Program (NECP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). JAMA 2001;285:2486–97.

Errata: Vol. 52, No. 11

In the article, "Outbreak of Severe Acute Respiratory Syndrome—Worldwide, 2003," an error occurred in the first paragraph of the Editorial Note on page 227. The second sentence should read, "During January 1, 1997–March 18, 2003, an estimated 5% of ill tourists worldwide who sought post-travel care from one of 25 worldwide GeoSentinel travel clinics had pneumonia (International Society of Travel Medicine, unpublished data, 2003)."

On page 228, the second reference should read, "World Tourism Organization. Yearbook of Tourism Statistics. Madrid, Spain: World Tourism Organization, 2002."

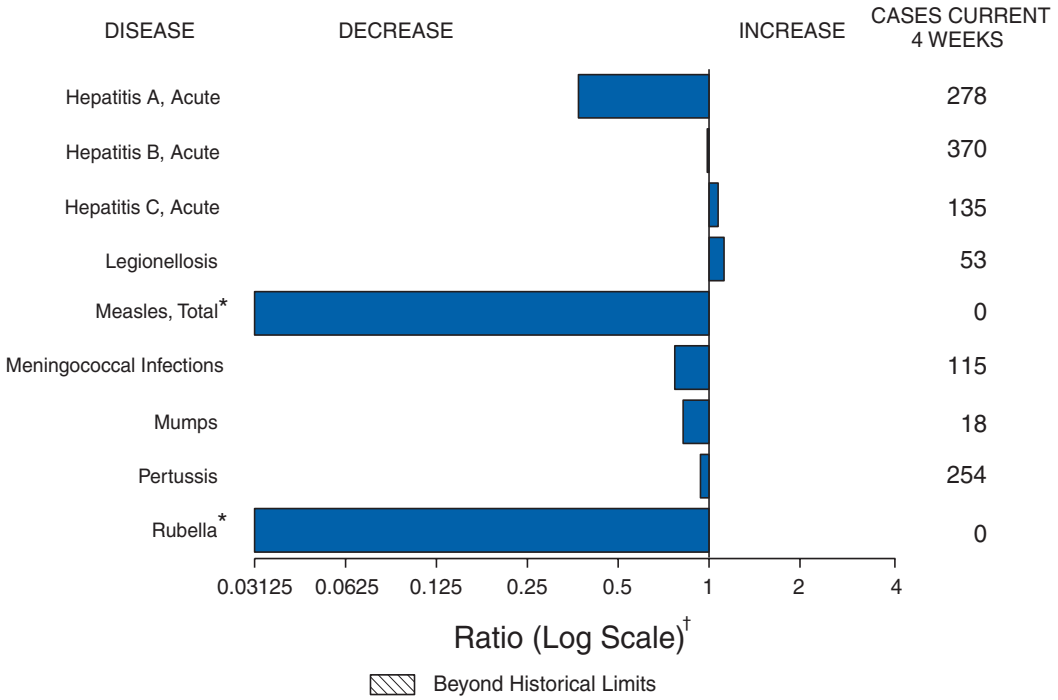
Erratum: Vol. 52, No. 12

In the article, "Update: Outbreak of Severe Acute Respiratory Syndrome—Worldwide, 2003," on page 243, an error occurred in the last sentence of the paragraph on Thailand. The sentence should read, "However, one HCW from Hanoi became infected while investigating the outbreak and was later hospitalized in Thailand."

Erratum: Vol. 52, No. 12

In the article, "Cardiac Adverse Events Following Smallpox Vaccination—United States, 2003," an error occurred on page 248, under Case 1. The patient was aged 55 years.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending March 29, 2003, with historical data



* No measles or rubella cases were reported for the current 4-week period yielding a ratio for week 13 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 March 29, 2003 (13th Week)*

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	1	Hansen disease (leprosy)†	17	17
Botulism:	-	-	Hantavirus pulmonary syndrome†	4	-
foodborne	3	4	Hemolytic uremic syndrome, postdiarrheal†	27	24
infant	13	19	HIV infection, pediatric†§	49	48
other (wound & unspecified)	7	6	Measles, total	3¶	7**
Brucellosis†	12	19	Mumps	57	76
Chancroid	9	17	Plague	-	-
Cholera	-	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	9	24	Psittacosis†	2	11
Diphtheria	-	-	Q fever†	10	8
Ehrlichiosis:	-	-	Rabies, human	-	-
human granulocytic (HGE)†	8	10	Rubella	-	1
human monocytic (HME)†	7	3	Rubella, congenital	-	2
other and unspecified	-	-	Streptococcal toxic-shock syndrome†	40	32
Encephalitis/Meningitis:	-	-	Tetanus	1	5
California serogroup viral†	-	-	Toxic-shock syndrome	22	37
eastern equine†	-	-	Trichinosis	1	4
Powassan†	-	-	Tularemia†	4	5
St. Louis†	-	-	Yellow fever	-	1
western equine†	-	-			

-: No reported cases.
* Incidence data for reporting years 2002 and 2003 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 February 23, 2003.
¶ Of three cases reported, two were indigenous and one was imported from another country.
** Of seven cases reported, four were indigenous and three were imported from another country.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	AIDS		Chlamydia†		Coccidiodomycosis		Cryptosporidiosis		Encephalitis/Meningitis West Nile	
	Cum. 2003§	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	6,085	10,098	179,491	195,851	942	1,014	369	536	-	-
NEW ENGLAND	209	314	6,261	6,717	-	-	22	18	-	-
Maine	-	1	249	350	N	N	2	-	-	-
N.H.	3	8	360	412	-	-	-	3	-	-
Vt.	5	5	254	190	-	-	4	3	-	-
Mass.	49	173	2,584	2,672	-	-	11	6	-	-
R.I.	21	34	759	683	-	-	3	3	-	-
Conn.	131	93	2,055	2,410	N	N	2	3	-	-
MID. ATLANTIC	1,622	2,086	14,462	21,794	-	-	38	66	-	-
Upstate N.Y.	73	146	4,148	3,260	N	N	12	11	-	-
N.Y. City	962	1,284	1,920	7,583	-	-	11	26	-	-
N.J.	179	391	2,623	3,372	-	-	3	5	-	-
Pa.	408	265	5,771	7,579	N	N	12	24	-	-
E.N. CENTRAL	617	963	30,006	34,581	2	6	68	151	-	-
Ohio	99	191	7,136	9,054	-	-	14	38	-	-
Ind.	95	133	3,624	4,266	N	N	6	13	-	-
Ill.	239	475	8,486	9,718	-	1	7	28	-	-
Mich.	156	116	6,828	7,361	2	5	18	27	-	-
Wis.	28	48	3,932	4,182	-	-	23	45	-	-
W.N. CENTRAL	115	144	11,014	10,843	-	-	37	47	-	-
Minn.	14	27	2,044	2,616	N	N	22	15	-	-
Iowa	18	32	1,085	1,061	N	N	5	5	-	-
Mo.	71	46	4,251	3,576	-	-	2	9	-	-
N. Dak.	-	-	168	293	N	N	-	2	-	-
S. Dak.	3	2	606	535	-	-	6	3	-	-
Nebr.	1	16	1,046	890	-	-	2	10	-	-
Kans.	8	21	1,814	1,872	N	N	-	3	-	-
S. ATLANTIC	1,157	3,488	37,042	36,496	1	-	75	102	-	-
Del.	27	57	748	654	N	N	1	1	-	-
Md.	47	419	4,025	3,742	1	-	7	3	-	-
D.C.	164	152	741	860	-	-	-	2	-	-
Va.	197	229	4,005	4,041	-	-	7	1	-	-
W. Va.	3	19	605	589	N	N	-	1	-	-
N.C.	75	260	6,028	5,401	N	N	9	13	-	-
S.C.	132	254	3,310	3,425	-	-	1	1	-	-
Ga.	218	649	8,025	7,760	-	-	32	47	-	-
Fla.	294	1,449	9,555	10,024	N	N	18	33	-	-
E.S. CENTRAL	237	403	12,554	13,394	N	N	23	27	-	-
Ky.	8	46	2,121	2,234	N	N	5	1	-	-
Tenn.	119	185	4,481	4,252	N	N	6	11	-	-
Ala.	45	85	3,039	4,245	-	-	10	13	-	-
Miss.	65	87	2,913	2,663	N	N	2	2	-	-
W.S. CENTRAL	804	1,047	24,200	26,695	-	-	2	10	-	-
Ark.	23	58	1,506	1,779	-	-	1	2	-	-
La.	49	258	3,967	4,475	N	N	-	2	-	-
Okla.	40	48	2,260	2,534	N	N	1	2	-	-
Tex.	692	683	16,467	17,907	-	-	-	4	-	-
MOUNTAIN	293	313	10,174	12,087	688	668	21	31	-	-
Mont.	6	4	410	518	N	N	2	1	-	-
Idaho	-	6	664	603	N	N	4	9	-	-
Wyo.	1	3	255	209	-	-	-	4	-	-
Colo.	56	63	2,144	3,495	N	N	5	6	-	-
N. Mex.	21	11	818	1,990	-	4	-	3	-	-
Ariz.	145	133	3,789	3,345	678	653	3	4	-	-
Utah	38	18	888	438	1	3	5	2	-	-
Nev.	26	75	1,206	1,489	9	8	2	2	-	-
PACIFIC	1,031	1,340	33,778	33,244	251	340	83	84	-	-
Wash.	68	141	3,857	3,485	N	N	-	15	-	-
Oreg.	46	127	1,760	1,751	-	-	5	8	-	-
Calif.	908	1,054	26,457	26,104	251	340	78	61	-	-
Alaska	6	2	561	868	-	-	-	-	-	-
Hawaii	3	16	1,143	1,036	-	-	-	-	-	-
Guam	1	-	-	-	-	-	-	-	-	-
P.R.	58	273	244	11	N	N	N	N	-	-
V.I.	1	52	-	51	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	2	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 years 2002 and 2003 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 February 23, 2003.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	*Escherichia coli*, Enterohemorrhagic (EHEC)						Giardiasis		Gonorrhea	
	O157:H7		Shiga toxin positive, serogroup non-O157		Shiga toxin positive, not serogrouped					
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	207	281	26	11	10	2	3,152	4,019	70,193	84,785
NEW ENGLAND	12	22	4	1	-	1	171	366	1,636	2,050
Maine	-	-	-	-	-	-	21	39	21	17
N.H.	3	2	-	-	-	-	12	14	27	34
Vt.	-	-	-	-	-	-	17	26	21	25
Mass.	4	12	-	1	-	1	99	204	659	911
R.I.	1	2	-	-	-	-	21	18	240	230
Conn.	4	6	4	-	-	-	1	65	668	833
MID. ATLANTIC	13	18	1	-	4	-	519	790	5,995	10,008
Upstate N.Y.	8	13	1	-	4	-	173	221	1,640	1,771
N.Y. City	2	-	-	-	-	-	242	245	848	3,091
N.J.	3	5	-	-	-	-	41	118	1,374	1,905
Pa.	N	N	-	-	-	-	63	206	2,133	3,241
E.N. CENTRAL	46	91	7	-	2	-	487	727	14,596	17,195
Ohio	14	15	7	-	2	-	194	213	4,376	4,967
Ind.	6	7	-	-	-	-	-	-	1,395	1,924
Ill.	7	26	-	-	-	-	110	206	4,173	5,387
Mich.	10	20	-	-	-	-	147	194	3,229	3,513
Wis.	9	23	-	-	-	-	36	114	1,423	1,404
W.N. CENTRAL	33	41	3	3	3	-	339	347	3,867	4,408
Minn.	12	11	3	3	-	-	117	112	516	786
Iowa	3	8	-	-	-	-	49	60	213	280
Mo.	9	11	N	N	N	N	89	90	2,080	2,119
N. Dak.	1	-	-	-	1	-	8	3	5	17
S. Dak.	2	1	-	-	-	-	12	16	36	67
Nebr.	4	7	-	-	-	-	39	33	337	328
Kans.	2	3	-	-	2	-	25	33	680	811
S. ATLANTIC	28	36	5	5	-	-	601	629	18,772	21,504
Del.	-	2	N	N	N	N	12	13	337	417
Md.	-	-	-	-	-	-	28	25	2,010	2,083
D.C.	-	-	-	-	-	-	6	11	551	703
Va.	3	4	-	-	-	-	53	36	2,016	2,539
W. Va.	-	-	-	-	-	-	5	8	201	234
N.C.	6	6	-	-	-	-	N	N	3,374	4,054
S.C.	-	-	-	-	-	-	15	4	1,873	1,938
Ga.	9	19	1	4	-	-	261	175	4,026	4,117
Fla.	10	5	4	1	-	-	221	357	4,384	5,419
E.S. CENTRAL	10	7	-	-	-	-	64	77	6,240	7,577
Ky.	1	2	-	-	-	-	N	N	878	873
Tenn.	5	4	-	-	-	-	26	33	1,990	2,376
Ala.	3	-	-	-	-	-	38	44	1,875	2,717
Miss.	1	1	-	-	-	-	-	-	1,497	1,611
W.S. CENTRAL	1	5	-	-	-	1	49	25	10,112	12,006
Ark.	1	-	-	-	-	-	28	25	871	1,086
La.	-	-	-	-	-	-	3	-	2,530	2,852
Okla.	-	-	-	-	-	-	18	-	901	1,103
Tex.	-	5	-	-	-	1	-	-	5,810	6,965
MOUNTAIN	26	21	5	1	1	-	298	292	2,303	2,764
Mont.	1	4	-	-	-	-	8	15	29	32
Idaho	6	1	3	-	-	-	41	9	20	24
Wyo.	-	-	-	1	-	-	3	2	13	16
Colo.	8	2	1	-	1	-	82	106	609	971
N. Mex.	-	2	1	-	-	-	11	31	164	371
Ariz.	8	4	N	N	N	N	59	46	1,040	857
Utah	3	5	-	-	-	-	66	49	82	36
Nev.	-	3	-	-	-	-	28	34	346	457
PACIFIC	38	40	1	1	-	-	624	766	6,672	7,273
Wash.	11	7	-	-	-	-	36	59	716	754
Oreg.	4	7	1	1	-	-	74	112	225	239
Calif.	23	23	-	-	-	-	476	547	5,414	5,987
Alaska	-	-	-	-	-	-	16	19	87	159
Hawaii	-	3	-	-	-	-	22	29	230	134
Guam	N	N	-	-	-	-	-	-	-	-
P.R.	-	-	-	-	-	-	3	-	22	3
V.I.	-	-	-	-	-	-	-	-	-	18
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 years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	*Haemophilus influenzae*, invasive								Hepatitis (viral, acute), by type	
	All ages		Age <5 years							
	All serotypes		Serotype B		Non-serotype B		Unknown serotype		A	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	344	490	2	4	54	87	7	6	1,263	2,486
NEW ENGLAND	27	38	-	-	2	4	1	2	42	101
Maine	2	1	-	-	1	-	-	-	3	4
N.H.	5	4	-	-	-	-	-	-	3	5
Vt.	4	3	-	-	-	-	-	-	1	-
Mass.	10	20	-	-	1	2	1	2	25	52
R.I.	-	-	-	-	-	-	-	-	2	4
Conn.	6	10	-	-	-	2	-	-	8	36
MID. ATLANTIC	52	92	-	1	9	14	1	-	151	270
Upstate N.Y.	25	38	-	1	7	7	-	-	24	46
N.Y. City	7	21	-	-	2	4	-	-	81	112
N.J.	9	27	-	-	-	3	-	-	27	53
Pa.	11	6	-	-	-	-	1	-	19	59
E.N. CENTRAL	30	84	1	1	5	13	-	-	139	307
Ohio	16	33	-	-	4	3	-	-	34	80
Ind.	8	13	-	-	1	4	-	-	6	12
Ill.	1	34	-	-	-	6	-	-	40	112
Mich.	5	4	1	1	-	-	-	-	50	62
Wis.	-	-	-	-	-	-	-	-	9	41
W.N. CENTRAL	26	13	-	-	4	1	2	2	38	97
Minn.	12	10	-	-	4	1	-	1	4	11
Iowa	-	1	-	-	-	-	-	-	11	21
Mo.	8	2	-	-	-	-	2	1	8	20
N. Dak.	-	-	-	-	-	-	-	-	-	-
S. Dak.	1	-	-	-	-	-	-	-	-	2
Nebr.	-	-	-	-	-	-	-	-	4	6
Kans.	5	-	-	-	-	-	-	-	11	37
S. ATLANTIC	85	112	-	-	7	22	-	-	369	675
Del.	-	-	-	-	-	-	-	-	3	6
Md.	18	29	-	-	1	-	-	-	44	85
D.C.	-	-	-	-	-	-	-	-	4	24
Va.	9	9	-	-	3	2	-	-	21	16
W. Va.	3	1	-	-	-	-	-	-	4	6
N.C.	5	11	-	-	-	1	-	-	22	90
S.C.	1	3	-	-	-	1	-	-	12	13
Ga.	18	35	-	-	2	12	-	-	141	124
Fla.	31	24	-	-	1	6	-	-	118	311
E.S. CENTRAL	31	22	-	1	5	5	-	-	37	91
Ky.	2	2	-	-	-	-	-	-	7	23
Tenn.	16	11	-	-	3	3	-	-	17	37
Ala.	11	5	-	1	1	2	-	-	9	9
Miss.	2	4	-	-	1	-	-	-	4	22
W.S. CENTRAL	19	22	-	1	2	4	-	-	58	191
Ark.	3	1	-	-	-	-	-	-	2	13
La.	4	2	-	-	-	-	-	-	7	12
Okla.	12	18	-	-	2	4	-	-	4	11
Tex.	-	1	-	1	-	-	-	-	45	155
MOUNTAIN	55	57	1	-	14	11	2	1	97	173
Mont.	-	-	-	-	-	-	-	-	1	5
Idaho	-	1	-	-	-	-	-	-	-	12
Wyo.	-	1	-	-	-	-	-	-	-	2
Colo.	12	13	-	-	4	2	-	-	8	23
N. Mex.	7	13	-	-	3	4	1	-	5	4
Ariz.	29	18	1	-	5	3	-	-	64	90
Utah	5	8	-	-	2	1	-	-	7	16
Nev.	2	3	-	-	-	1	1	1	12	21
PACIFIC	19	50	-	-	6	13	1	1	332	581
Wash.	3	-	-	-	2	-	1	-	13	37
Oreg.	12	25	-	-	3	4	-	-	21	31
Calif.	1	14	-	-	1	7	-	1	292	496
Alaska	-	1	-	-	-	1	-	-	3	6
Hawaii	3	10	-	-	-	1	-	-	3	11
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	-	-	-	-	-	-	-	2	-
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 years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	Hepatitis (viral, acute), by type				Legionellosis		Listeriosis		Lyme disease	
	B		C							
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	1,448	1,514	414	454	205	178	84	92	991	1,205
NEW ENGLAND	47	55	-	10	8	7	6	10	46	124
Maine	-	1	-	-	-	1	-	2	-	-
N.H.	3	5	-	-	-	1	1	2	3	13
Vt.	1	2	-	4	1	-	-	-	3	1
Mass.	41	35	-	6	2	3	3	4	2	103
R.I.	-	-	-	-	1	-	-	-	10	3
Conn.	2	12	-	-	4	2	2	2	28	4
MID. ATLANTIC	238	334	22	23	24	47	10	14	763	889
Upstate N.Y.	18	27	8	15	13	8	3	7	463	539
N.Y. City	78	181	-	-	5	8	4	2	-	28
N.J.	131	75	-	3	2	11	2	1	93	177
Pa.	11	51	14	5	4	20	1	4	207	145
E.N. CENTRAL	108	147	29	29	49	62	7	15	10	33
Ohio	38	24	3	-	25	29	2	7	7	4
Ind.	4	6	1	-	3	4	1	-	3	2
Ill.	-	21	2	7	2	6	-	1	-	-
Mich.	54	87	23	22	19	16	4	4	-	-
Wis.	12	9	-	-	-	7	-	3	U	27
W.N. CENTRAL	66	62	62	202	7	9	2	2	17	10
Minn.	5	1	1	-	2	1	1	-	13	4
Iowa	4	7	-	1	2	-	-	-	2	3
Mo.	40	35	60	198	1	4	-	1	1	3
N. Dak.	-	-	-	-	1	-	-	1	-	-
S. Dak.	1	-	-	-	-	1	-	-	-	-
Nebr.	11	10	1	3	-	3	1	-	-	-
Kans.	5	9	-	-	1	-	-	-	1	-
S. ATLANTIC	481	411	65	31	71	19	22	12	118	102
Del.	2	4	-	3	-	3	N	N	21	17
Md.	27	39	4	3	14	6	4	2	64	65
D.C.	-	4	-	-	1	-	-	-	2	5
Va.	28	40	-	-	4	2	2	1	9	1
W. Va.	1	7	-	-	N	N	-	-	-	-
N.C.	40	46	3	6	7	3	5	1	12	11
S.C.	25	9	20	3	1	2	1	2	-	1
Ga.	198	142	3	2	6	3	4	3	2	-
Fla.	160	120	35	14	38	-	6	3	8	2
E.S. CENTRAL	76	87	22	56	4	5	4	5	5	3
Ky.	13	11	3	1	-	3	-	1	1	1
Tenn.	27	35	1	11	2	-	-	2	2	-
Ala.	19	22	4	2	1	2	3	2	-	-
Miss.	17	19	14	42	1	-	1	-	2	2
W.S. CENTRAL	46	111	113	74	10	4	1	8	2	16
Ark.	2	36	-	5	-	-	-	-	-	-
La.	18	13	12	5	-	1	-	-	2	1
Okla.	8	1	-	-	2	-	1	3	-	-
Tex.	18	61	101	64	8	3	-	5	-	15
MOUNTAIN	151	98	17	7	13	6	11	8	5	4
Mont.	4	2	1	-	-	1	1	-	-	-
Idaho	-	1	-	-	1	-	-	-	1	1
Wyo.	2	5	-	2	1	-	-	-	-	-
Colo.	23	17	12	1	2	2	5	2	1	-
N. Mex.	5	18	-	-	1	1	1	-	-	1
Ariz.	87	38	3	-	4	-	4	4	-	1
Utah	11	7	-	-	2	2	-	2	2	1
Nev.	19	10	1	4	2	-	-	-	1	-
PACIFIC	235	209	84	22	19	19	21	18	25	24
Wash.	12	11	1	3	1	1	1	1	-	-
Oreg.	34	37	3	7	N	N	1	1	6	1
Calif.	181	156	11	12	18	18	19	16	18	23
Alaska	4	3	68	-	-	-	-	-	1	-
Hawaii	4	2	1	-	-	-	-	-	N	N
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	3	-	-	-	-	-	-	-	N	N
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 years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	Malaria		Meningococcal disease		Pertussis		Rabies, animal		Rocky Mountain spotted fever	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	196	250	452	535	951	1,450	829	1,425	57	72
NEW ENGLAND	5	16	23	36	152	195	93	167	1	-
Maine	1	1	2	2	-	3	8	12	-	-
N.H.	1	4	1	4	10	1	3	3	-	-
Vt.	-	-	-	3	17	33	7	33	-	-
Mass.	3	7	18	20	125	153	34	53	1	-
R.I.	-	-	-	2	-	-	6	6	-	-
Conn.	-	4	2	5	-	5	35	60	-	-
MID. ATLANTIC	37	51	31	50	93	85	61	177	4	9
Upstate N.Y.	12	8	8	16	62	63	60	110	-	-
N.Y. City	18	24	8	4	-	5	1	7	2	-
N.J.	2	11	6	10	6	-	-	25	2	1
Pa.	5	8	9	20	25	17	-	35	-	8
E.N. CENTRAL	13	35	55	75	86	194	6	3	1	2
Ohio	5	7	22	26	61	114	-	1	1	2
Ind.	-	2	13	11	7	14	2	1	-	-
Ill.	2	10	-	12	-	25	1	1	-	-
Mich.	6	11	17	15	12	19	3	-	-	-
Wis.	-	5	3	11	6	22	-	-	-	-
W.N. CENTRAL	6	18	45	49	52	134	122	81	2	5
Minn.	4	7	10	8	27	46	6	7	-	-
Iowa	2	2	6	6	7	30	17	9	1	-
Mo.	-	4	23	22	10	36	-	2	1	5
N. Dak.	-	-	-	-	-	-	16	-	-	-
S. Dak.	-	-	-	2	1	5	6	20	-	-
Nebr.	-	2	3	7	1	2	24	-	-	-
Kans.	-	3	3	4	6	15	53	43	-	-
S. ATLANTIC	62	70	92	78	123	94	445	495	45	49
Del.	-	1	7	3	1	1	-	3	-	-
Md.	22	20	8	2	16	13	2	93	5	8
D.C.	2	2	-	-	-	-	-	-	-	-
Va.	6	4	6	11	28	31	130	133	1	1
W. Va.	2	-	1	-	1	1	15	34	-	-
N.C.	5	6	6	11	45	11	178	132	34	30
S.C.	1	2	4	10	3	20	28	17	3	5
Ga.	5	34	14	12	14	11	63	59	-	5
Fla.	19	1	46	29	15	6	29	24	2	-
E.S. CENTRAL	6	5	19	24	22	51	14	114	2	6
Ky.	1	1	-	4	4	12	9	6	-	-
Tenn.	3	1	3	6	8	28	-	108	1	4
Ala.	2	1	6	9	8	4	5	-	-	2
Miss.	-	2	10	5	2	7	-	-	1	-
W.S. CENTRAL	11	2	72	70	50	285	54	297	-	1
Ark.	1	-	4	9	-	162	17	-	-	-
La.	1	2	18	5	3	2	-	-	-	-
Okla.	-	-	5	6	2	12	37	25	-	-
Tex.	9	-	45	50	45	109	-	272	-	1
MOUNTAIN	9	8	16	38	193	160	16	35	1	-
Mont.	-	-	1	1	-	2	3	3	-	-
Idaho	1	-	1	1	8	22	-	-	-	-
Wyo.	-	-	-	-	16	4	-	1	-	-
Colo.	7	3	4	11	85	85	-	-	-	-
N. Mex.	-	-	2	1	15	23	-	-	-	-
Ariz.	1	2	6	12	45	12	13	31	1	-
Utah	-	2	-	1	18	9	-	-	-	-
Nev.	-	1	2	11	6	3	-	-	-	-
PACIFIC	47	45	99	115	180	252	18	56	1	-
Wash.	5	2	8	15	54	79	-	-	-	-
Oreg.	5	-	21	17	59	14	-	-	-	-
Calif.	37	40	64	79	67	154	17	36	1	-
Alaska	-	1	-	1	-	1	1	20	-	-
Hawaii	-	2	6	3	-	4	-	-	-	-
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	-	-	-	-	-	15	-	N	N
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 years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive: Drug resistant, all ages		*Streptococcus pneumoniae*, invasive: Age <5 years	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	5,387	6,629	4,284	3,378	1,367	1,223	659	632	88	52
NEW ENGLAND	236	331	68	56	78	64	2	1	1	1
Maine	16	43	3	2	10	12	-	-	-	-
N.H.	17	14	-	3	11	16	-	-	N	N
Vt.	4	15	-	-	6	1	2	1	1	1
Mass.	133	186	41	43	50	35	N	N	N	N
R.I.	16	5	2	-	1	-	-	-	-	-
Conn.	50	68	22	8	-	-	-	-	-	-
MID. ATLANTIC	449	874	262	190	175	206	30	28	22	13
Upstate N.Y.	130	172	64	25	107	93	21	28	17	13
N.Y. City	171	230	87	69	23	36	U	U	U	U
N.J.	47	240	65	48	13	52	N	N	N	N
Pa.	101	232	46	48	32	25	9	-	5	-
E.N. CENTRAL	721	1,153	276	463	296	305	138	55	41	25
Ohio	245	290	69	236	99	57	98	-	36	-
Ind.	55	50	26	13	24	10	40	53	5	8
Ill.	232	472	108	140	55	106	-	2	-	-
Mich.	120	198	55	42	117	90	N	N	N	N
Wis.	69	143	18	32	1	42	N	N	-	17
W.N. CENTRAL	355	450	185	327	108	78	85	175	13	10
Minn.	99	90	20	37	42	34	-	108	13	9
Iowa	77	60	8	30	N	N	N	N	N	N
Mo.	95	188	61	36	22	22	4	4	-	1
N. Dak.	8	5	-	-	5	-	3	-	-	-
S. Dak.	17	20	8	111	12	3	-	1	-	-
Nebr.	25	29	68	78	15	7	4	19	N	N
Kans.	34	58	20	35	12	12	74	43	N	N
S. ATLANTIC	1,561	1,669	1,877	1,271	254	198	346	281	2	1
Del.	7	12	75	3	3	-	N	N	N	N
Md.	146	129	149	143	86	26	-	-	-	-
D.C.	8	19	14	15	5	3	-	26	-	1
Va.	120	144	62	263	22	23	N	N	N	N
W. Va.	8	9	-	2	9	-	17	11	2	-
N.C.	261	223	205	65	31	50	N	N	U	U
S.C.	67	72	44	12	5	15	24	60	N	N
Ga.	371	365	685	472	25	51	110	108	N	N
Fla.	573	696	643	296	68	30	195	76	N	N
E.S. CENTRAL	344	329	209	245	46	39	28	58	-	-
Ky.	66	40	34	43	7	5	1	8	N	N
Tenn.	118	104	61	15	39	34	27	50	N	N
Ala.	108	102	82	96	-	-	-	-	N	N
Miss.	52	83	32	91	-	-	-	-	-	-
W.S. CENTRAL	275	435	552	239	68	66	18	17	9	-
Ark.	63	61	11	31	1	-	4	2	-	-
La.	52	67	51	31	1	1	14	15	7	-
Okla.	43	58	163	56	26	11	N	N	2	-
Tex.	117	249	327	121	40	54	N	N	-	-
MOUNTAIN	408	391	241	109	185	102	11	17	-	2
Mont.	30	10	1	-	-	-	-	-	-	-
Idaho	46	21	6	2	9	1	N	N	N	N
Wyo.	4	14	1	1	-	3	3	7	-	-
Colo.	109	107	40	28	64	34	-	-	-	-
N. Mex.	31	60	34	15	43	34	8	10	-	-
Ariz.	129	100	140	46	62	22	-	-	N	N
Utah	35	32	9	10	7	8	-	-	-	2
Nev.	24	47	10	7	-	-	-	-	-	-
PACIFIC	1,038	997	614	478	157	165	1	-	-	-
Wash.	71	41	36	15	-	26	-	-	N	N
Oreg.	65	63	16	30	N	N	N	N	N	N
Calif.	844	830	547	417	130	124	N	N	N	N
Alaska	23	16	4	1	-	-	-	-	N	N
Hawaii	35	47	11	15	27	15	1	-	-	-
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	20	-	1	-	N	N	N	N	N	N
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 years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending March 29, 2003, and March 30, 2002 (13th Week)*

Reporting area	Syphilis: Primary & secondary Cum. 2003	Syphilis: Primary & secondary Cum. 2002	Syphilis: Congenital Cum. 2003	Syphilis: Congenital Cum. 2002	Tuberculosis Cum. 2003	Tuberculosis Cum. 2002	Typhoid fever Cum. 2003	Typhoid fever Cum. 2002	Varicella (Chickenpox) Cum. 2003
UNITED STATES	1,530	1,511	73	101	1,377	2,487	57	72	23,798
NEW ENGLAND	40	20	-	-	42	80	5	6	602
Maine	2	-	-	-	-	4	-	-	325
N.H.	4	-	-	-	3	3	-	-	-
Vt.	-	-	-	-	-	1	-	-	218
Mass.	28	12	-	-	30	28	1	5	57
R.I.	5	2	-	-	3	16	2	-	2
Conn.	1	6	-	-	6	28	2	1	-
MID. ATLANTIC	163	162	11	14	297	421	7	21	2
Upstate N.Y.	4	6	6	1	40	58	3	2	N
N.Y. City	90	93	4	5	217	214	3	8	-
N.J.	42	36	1	8	-	94	1	8	-
Pa.	27	27	-	-	40	55	-	3	2
E.N. CENTRAL	220	297	21	13	212	214	3	9	22,455
Ohio	48	44	2	-	26	29	-	3	403
Ind.	6	14	3	-	30	22	1	1	-
Ill.	72	88	11	12	105	102	-	1	-
Mich.	90	145	5	1	48	44	2	3	1,145
Wis.	4	6	-	-	3	17	-	1	20,907
W.N. CENTRAL	37	19	-	-	78	103	-	3	9
Minn.	12	9	-	-	30	46	-	2	N
Iowa	2	-	-	-	5	-	-	-	N
Mo.	14	5	-	-	13	34	-	1	-
N. Dak.	-	-	-	-	-	-	-	-	9
S. Dak.	-	-	-	-	9	5	-	-	-
Nebr.	-	2	-	-	2	1	-	-	-
Kans.	9	3	-	-	19	17	-	-	-
S. ATLANTIC	417	367	10	26	228	492	14	11	646
Del.	2	4	-	-	-	-	-	-	2
Md.	64	40	-	3	37	52	2	2	-
D.C.	6	13	1	-	-	-	-	-	7
Va.	20	8	1	-	45	48	8	-	119
W. Va.	-	-	-	-	4	7	-	-	487
N.C.	41	84	3	7	37	49	1	-	N
S.C.	34	31	1	3	36	28	-	-	31
Ga.	87	59	2	6	56	87	1	5	-
Fla.	163	128	2	7	13	221	2	4	N
E.S. CENTRAL	93	158	9	11	143	164	2	2	-
Ky.	16	18	1	2	21	25	-	2	N
Tenn.	42	64	4	3	41	72	-	-	N
Ala.	29	56	4	4	66	45	2	-	-
Miss.	6	20	-	2	15	22	-	-	-
W.S. CENTRAL	214	187	11	24	36	448	-	4	5
Ark.	10	10	-	-	18	21	-	-	-
La.	24	34	-	-	-	-	-	-	3
Okla.	13	17	-	-	18	31	-	-	N
Tex.	167	126	11	24	-	396	-	4	2
MOUNTAIN	65	72	8	4	44	52	3	3	79
Mont.	-	-	-	-	-	-	-	-	N
Idaho	2	1	-	-	1	-	-	-	N
Wyo.	-	-	-	-	1	1	-	-	2
Colo.	3	7	2	1	13	16	3	1	-
N. Mex.	7	8	-	-	-	9	-	-	-
Ariz.	49	52	6	3	23	17	-	-	-
Utah	2	2	-	-	6	5	-	1	77
Nev.	2	2	-	-	-	4	-	1	-
PACIFIC	281	229	3	9	297	513	23	13	-
Wash.	16	13	-	-	49	54	-	-	-
Oreg.	12	4	-	-	18	22	2	2	-
Calif.	247	211	3	9	191	390	21	11	-
Alaska	-	-	-	-	13	18	-	-	-
Hawaii	6	1	-	-	26	29	-	-	-
Guam	-	-	-	-	-	-	-	-	-
P.R.	42	5	1	-	-	-	-	-	22
V.I.	-	1	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE III. Deaths in 122 U.S. cities,* week ending March 29, 2003 (13th Week)

Reporting Area	All causes, by age (years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	501	342	100	33	16	10	48
Boston, Mass.	132	80	27	10	7	8	18
Bridgeport, Conn.	37	27	8	2	-	-	2
Cambridge, Mass.	21	15	4	1	1	-	3
Fall River, Mass.	27	21	5	-	1	-	6
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	25	20	2	2	1	-	4
Lynn, Mass.	13	8	3	2	-	-	-
New Bedford, Mass.	23	18	4	1	-	-	2
New Haven, Conn.	24	15	9	-	-	-	2
Providence, R.I.	64	46	9	5	2	2	-
Somerville, Mass.	7	5	2	-	-	-	-
Springfield, Mass.	42	27	6	7	2	-	4
Waterbury, Conn.	30	23	6	-	1	-	2
Worcester, Mass.	56	37	15	3	1	-	5
MID. ATLANTIC	2,117	1,499	425	115	46	27	114
Albany, N.Y.	42	36	4	-	-	2	2
Allentown, Pa.	20	17	2	-	-	1	1
Buffalo, N.Y.	83	62	18	2	-	1	10
Camden, N.J.	32	19	9	4	-	-	3
Elizabeth, N.J.	15	12	1	2	-	-	2
Erie, Pa.	41	32	9	-	-	-	2
Jersey City, N.J.	35	24	7	2	1	1	-
New York City, N.Y.	1,097	761	241	57	21	12	44
Newark, N.J.	65	36	18	6	4	1	1
Paterson, N.J.	12	9	3	-	-	-	2
Philadelphia, Pa.	297	191	63	28	10	5	15
Pittsburgh, Pa.§	38	26	8	-	3	1	3
Reading, Pa.	18	17	1	-	-	-	2
Rochester, N.Y.	145	113	20	4	6	2	12
Schenectady, N.Y.	22	17	2	3	-	-	4
Scranton, Pa.	30	27	2	1	-	-	1
Syracuse, N.Y.	64	52	8	3	1	-	8
Trenton, N.J.	24	16	6	1	-	1	-
Utica, N.Y.	21	19	2	-	-	-	2
Yonkers, N.Y.	16	13	1	2	-	-	-
E.N. CENTRAL	2,168	1,472	447	131	59	57	176
Akron, Ohio	44	35	4	1	3	1	8
Canton, Ohio	49	35	13	1	-	-	4
Chicago, Ill.	354	220	73	36	13	10	23
Cincinnati, Ohio	83	64	10	2	6	1	7
Cleveland, Ohio	151	87	40	11	7	6	4
Columbus, Ohio	194	140	40	6	3	5	21
Dayton, Ohio	132	94	27	5	4	2	11
Detroit, Mich.	210	115	66	19	5	5	18
Evansville, Ind.	63	52	8	2	-	1	6
Fort Wayne, Ind.	66	52	9	5	-	-	6
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	60	44	9	4	-	3	8
Indianapolis, Ind.	258	171	57	12	6	12	18
Lansing, Mich.	41	31	7	2	1	-	9
Milwaukee, Wis.	129	90	29	7	2	1	8
Peoria, Ill.	47	29	11	4	-	3	5
Rockford, Ill.	62	36	13	4	6	3	5
South Bend, Ind.	49	39	8	2	-	-	2
Toledo, Ohio	107	82	13	6	3	3	7
Youngstown, Ohio	69	56	10	2	-	1	6
W.N. CENTRAL	540	363	89	49	20	18	45
Des Moines, Iowa	48	32	10	5	1	-	3
Duluth, Minn.	36	25	6	1	3	1	1
Kansas City, Kans.	25	14	8	2	-	1	3
Kansas City, Mo.	96	58	20	7	5	5	6
Lincoln, Nebr.	44	38	3	3	-	-	3
Minneapolis, Minn.	91	64	17	5	1	4	8
Omaha, Nebr.	83	55	15	8	-	5	9
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	56	41	10	3	-	2	9
Wichita, Kans.	61	36	-	15	10	-	3
S. ATLANTIC	1,233	768	288	115	45	17	74
Atlanta, Ga.	148	94	32	14	6	2	2
Baltimore, Md.	224	122	67	26	7	2	11
Charlotte, N.C.	100	66	26	4	2	2	8
Jacksonville, Fla.	152	88	40	15	9	-	11
Miami, Fla.	72	41	19	8	3	1	7
Norfolk, Va.	58	40	12	4	1	1	4
Richmond, Va.	62	38	13	8	2	1	1
Savannah, Ga.	48	31	13	4	-	-	6
St. Petersburg, Fla.	81	63	12	2	3	1	9
Tampa, Fla.	166	107	31	19	6	3	9
Washington, D.C.	103	61	21	11	6	4	1
Wilmington, Del.	19	17	2	-	-	-	5
E.S. CENTRAL	788	553	165	41	16	10	85
Birmingham, Ala.	208	147	47	8	2	1	23
Chattanooga, Tenn.	79	55	16	8	-	-	8
Knoxville, Tenn.	71	59	10	2	-	-	9
Lexington, Ky.	43	31	7	2	-	3	3
Memphis, Tenn.	163	112	35	7	8	1	16
Mobile, Ala.	86	64	16	5	-	1	3
Montgomery, Ala.	17	16	-	-	-	1	7
Nashville, Tenn.	121	69	34	9	6	3	16
W.S. CENTRAL	1,556	1,004	325	132	57	38	116
Austin, Tex.	91	59	18	7	7	-	8
Baton Rouge, La.	42	27	11	3	-	1	4
Corpus Christi, Tex.	58	39	13	2	4	-	4
Dallas, Tex.	179	106	43	20	5	5	17
El Paso, Tex.	79	54	15	7	1	2	3
Ft. Worth, Tex.	157	112	25	10	3	7	19
Houston, Tex.	359	216	70	37	21	15	23
Little Rock, Ark.	65	43	15	4	2	1	4
New Orleans, La.	40	22	10	4	4	-	-
San Antonio, Tex.	251	157	60	25	6	3	13
Shreveport, La.	93	64	16	6	3	4	9
Tulsa, Okla.	142	105	29	7	1	-	12
MOUNTAIN	1,008	721	181	57	28	21	68
Albuquerque, N.M.	111	81	18	6	6	-	7
Boise, Idaho	45	25	12	3	3	2	2
Colo. Springs, Colo.	95	71	19	4	-	1	4
Denver, Colo.	111	74	19	10	2	6	15
Las Vegas, Nev.	260	181	57	17	4	1	20
Ogden, Utah	32	27	3	-	1	1	1
Phoenix, Ariz.	U	U	U	U	U	U	U
Pueblo, Colo.	32	27	2	-	3	-	2
Salt Lake City, Utah	129	81	23	12	4	9	9
Tucson, Ariz.	193	154	28	5	5	1	8
PACIFIC	1,788	1,311	314	96	40	27	164
Berkeley, Calif.	24	15	4	3	-	2	2
Fresno, Calif.	70	53	11	3	2	1	7
Glendale, Calif.	29	24	3	1	1	-	-
Honolulu, Hawaii	77	59	12	3	2	1	8
Long Beach, Calif.	76	52	19	4	1	-	4
Los Angeles, Calif.	403	275	74	33	10	11	17
Pasadena, Calif.	39	33	6	-	-	-	11
Portland, Oreg.	130	97	24	6	2	1	8
Sacramento, Calif.	237	164	46	20	5	2	28
San Diego, Calif.	160	122	30	5	1	2	16
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	211	168	31	4	4	4	35
Santa Cruz, Calif.	46	38	6	2	-	-	8
Seattle, Wash.	131	96	24	3	7	1	9
Spokane, Wash.	68	50	8	5	4	1	5
Tacoma, Wash.	87	65	16	4	1	1	6
TOTAL	11,699¶	8,033	2,334	769	327	225	890

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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