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Transmission of Hepatitis B and C Viruses in Outpatient Settings — New York, Oklahoma, and Nebraska, 2000–2002

Transmission of hepatitis B virus (HBV) and hepatitis C virus (HCV) can occur in health-care settings from percutaneous or mucosal exposures to blood or other body fluids from an infected patient or health-care worker. This report summarizes the investigation of four outbreaks of HBV and HCV infections that occurred in outpatient health-care settings. The investigation of each outbreak suggested that unsafe injection practices, primarily reuse of syringes and needles or contamination of multiple-dose medication vials, led to patient-to-patient transmission. To prevent transmission of bloodborne pathogens, all health-care workers should adhere to recommended standard precautions and fundamental infection-control principles, including safe injection practices and appropriate aseptic techniques.

In the four investigations, a case of acute HBV infection was defined on the basis of a positive test for IgM antibody to hepatitis B core antigen. A case of past or current HCV infection was defined on the basis of a confirmed positive test for HCV RNA or for antibody to HCV; patients known to have been infected before visiting the health-care facility were excluded. Patients with chronic or acute infection were considered to be potential sources for transmission to susceptible patients. Patients were categorized as having clinic-acquired infection on the basis of evidence that included epidemiologic findings, temporal associations between patients and procedures, documented seroconversion, signs and symptoms of acute viral hepatitis, traditional risk factors for HBV or HCV infection, or genetic relatedness among viral isolates.

HCV Transmission in a Private Physician's Office — New York City

In May 2001, a physician notified the New York City Department of Health (NYCDOH) of seven patients who had acute HCV infections after undergoing endoscopic procedures at the same office in March 2001. The office voluntarily ceased performing such procedures in late April 2001.

During the 9-day period encompassing the procedure dates of these seven patients, 68 patients underwent procedures in this practice. Among 61 (90%) patients who were tested, five additional acute HCV infections were identified, and a chronic infection in a patient whose procedure preceded the 12 acute HCV cases was identified. All 12 patients had a procedure performed within 3 days after the chronically infected patient. This chronically infected patient and six of the acutely infected patients had HCV genotype information available; all were genotype 2c, which is rare in the United States (*1*). On the basis of these results, patients who underwent endoscopic procedures since the office opened in January 2000 were notified and offered testing for HCV, HBV, and human immunodeficiency virus (HIV). Results were available for 1,315 (60%) of 2,192 eligible patients; seven additional patients were identified as having HCV infections that prob-

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ably were acquired in the office. No evidence of HIV transmission was observed; HBV infection was noted among some patients, but epidemiologic links among such office patients could not be established.

A retrospective case-control study indicated that clinic-acquired HCV infection was not associated with type of endoscopic procedure, specific endoscope used, whether a biopsy was performed, type of biopsy, or anesthesia type or dose. However, the investigation revealed inappropriate infection-control and injection practices, which indicated that the probable route of transmission was contamination of multiple-dose anesthesia medication vials. In April 2002, after corrections to infection-control practices were made by the office, the New York State Department of Health allowed the office to resume gastrointestinal procedures.

HBV Transmission in a Private Physician's Office — New York City

In December 2001, NYCDOH was informed of two elderly patients (aged >75 years) who had acute HBV infection diagnosed and who had visited the office of the same physician (physician A) during their incubation periods. A preliminary investigation by NYCDOH identified 19 additional cases of acute HBV infection.

On the basis of these results, NYCDOH offered testing for HBV, HCV, and HIV infection to 1,042 patients of physician A; 38 patients, including the 19 previously identified, had acute HBV infection during February 2000–February 2002. HBV DNA genetic sequences of 24 patients with acute infection and four patients with chronic infection were identical in the 1,500–base-pair region examined. No evidence of HCV or HIV transmission was observed.

A retrospective cohort study was conducted among the 275 patients attending physician A's office during the 10 months preceding outbreak detection. Of 91 patients with serologic results and available medical records that were included in the cohort study, 18 were infected. Among 67 patients who received at least one injection, 18 (27%) had acute HBV infection, compared with none who received no injections (relative risk [RR] = 13.6; 95% confidence interval [CI] = 2.4–undefined). Patients with HBV infection received a median of 14 injections (range: 2–25), compared with susceptible patients, who received a median of two injections (range: 0–17) ($p<0.001$). Typically, injections included doses of atropine, dexamethasone, and vitamin B12 drawn from multiple-dose vials into one syringe. The same workspace was used to prepare, dismantle, and dispose of injection equipment.

In December 2001, NYCDOH ordered physician A to stop administering injections. In April 2002, physician A retired and closed his office permanently. In response to this outbreak and the outbreak described above, NYCDOH sent a letter (available at http://www.nyc.gov/html/doh/pdf/chi/ltr22002.pdf) to all city clinicians outlining the need for all staff to adhere to infection-control and bloodborne pathogen precautions, including single use of needles and syringes and appropriate use of multiple-dose vials to prevent cross contamination.

HBV and HCV Transmission in a Pain Remediation Clinic — Oklahoma

In August 2002, the Oklahoma State Department of Health (OSDH) was informed of six patients with suspected acute HCV infection who had received treatment from the same pain remediation clinic. A preliminary investigation by OSDH found that a certified registered nurse anesthetist (CRNA) reused needles and syringes routinely during clinic sessions. A single needle and syringe was used to administer each of three sedation medications (Versed® [midazolam HCl], fentanyl, and propofol) to up to 24 sequentially treated patients at each clinic session. These medications were administered through heparin locks that were connected directly to intravenous cannulas.

On the basis of these findings, the clinic was closed, and an investigation was initiated. Serologic testing for HCV, HBV, and HIV infection was completed for 793 (87%) of the 908 patients attending the clinic. A total of 69 HCV and 31 HBV infections were identified that probably were acquired in the clinic; no HIV infections were identified. Receiving treatment during a clinic session after a patient who was anti-HCV–positive was a statistically significant risk factor for acquiring HCV infection (RR = 9.2; 95% CI = 3.7–22.5). Receiving treatment after a patient who was hepatitis B surface antigen–positive was a significant risk factor for acquiring HBV infection (RR = 8.5; 95% CI = 4.2–17.0). In June 2002, before this investigation, the CRNA ceased reuse of needles after a complaint was filed by staff nurses. After June 2002, no evidence of HBV or HCV transmission associated with receiving treatment at the clinic was found.

The state board of nursing revoked the CRNA's license and imposed a $99,000 fine. In response to this outbreak, the American Association of Nurse Anesthetists (AANA) sent mailings to all AANA members and students, nurse anesthesia school program directors, and hospital administrators reminding them that needles and syringes are single-use items and should not be reused.

HCV Transmission in a Hematology/Oncology Clinic — Nebraska

In September 2002, a gastroenterologist reported four patients with recently diagnosed HCV infection to the Nebraska Health and Human Services System (NHHSS). All of these patients had received chemotherapy at the same hematology/oncology clinic. A preliminary investigation identified 10 cases of recently diagnosed HCV infection among clinic patients. Of the six patients for whom HCV genotype was available, all were genotype 3a, which is rare in the United States (*1*). A patient with a previous diagnosis of chronic HCV genotype 3a infection began attending the clinic in March 2000. The investigation revealed that the health-care worker responsible for medication infusions routinely used the same syringe to draw blood from patients' central venous catheters and to draw catheter-flushing solution from 500-cc saline bags that were used for multiple patients. The clinic staff reported that by July 2001, this practice was corrected through changes in personnel and infection-control practices. NHHSS conducted an investigation among all living patients examined at the clinic during March 2000–December 2001. Of 613 eligible patients, 486 (79%) underwent HCV testing; 99 patients with clinic-acquired HCV infection were identified. HCV genotype information was available for 95 patients; all isolates were genotype 3a. During March 2000–June 2001, 85 (61%) of 139 patients with an implanted central venous catheter became infected with HCV, compared with 14 (6%) of 228 patients without an implanted catheter (RR = 10.0; 95% CI = 5.9–16.8). No evidence of HBV or HIV transmission or of HCV transmission after June 2001 was found. The clinic closed in October 2002.

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Editorial Note: These four outbreaks are among the largest health-care–related viral hepatitis outbreaks reported in the United States and share several common characteristics. All occurred in outpatient settings and were reported to public health authorities by clinicians who suspected these infections might have been health-care–related. The investigations were resource-intensive and involved notification, testing, and counseling of hundreds of patients. Transmission probably occurred indirectly from patient to patient after exposure to injection

equipment that was contaminated with the blood of one or more source patients. All of these outbreaks could have been prevented by adherence to basic principles of aseptic technique for the preparation and administration of parenteral medications (*2–7*) (Box).

Health-care–related exposures are a well-recognized but uncommon source of viral hepatitis transmission in the United States (*7–10*). The majority of outbreaks identified previously have been associated with unsafe injection practices, primarily reuse of syringes and needles or contamination of multiple-dose medication vials. However, because the majority of patients with acute HBV or HCV infection are asymptomatic, clusters of patients infected in the health-care setting might be unrecognized. Health-care–related transmission should be suspected when cases are detected among persons without traditional risk factors for infection. State and local health authorities should consider strategies to improve case identification, such as targeting intensive follow-up for persons who typically are at low risk for infection (e.g., persons aged >60 years).

In the outbreaks described in this report, health-care workers did not adhere to fundamental principles related to safe injection practices, suggesting that they failed to understand the potential of their actions to lead to disease transmission. In addition, deficiencies related to oversight of personnel and failures to follow up on reported breaches in infection-control practices resulted in delays in correcting the implicated practices. To prevent health-care–related transmission of bloodborne viruses, certification and training programs need to reinforce infection-control principles and practices, including aseptic techniques and safe injection practices. These principles should be reviewed with frequent in-service education for health-care staff, including those who work in outpatient settings, and practices should be monitored as part of the institutional oversight process. Finally, written policies and procedures to prevent patient-to-patient transmission of bloodborne pathogens should be established and implemented among all staff involved in direct patient care. CDC is working with professional organizations, advisory groups, and state and local health departments to address these issues.

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BOX. Infection-control and safe injection practices to prevent patient-to-patient transmission of bloodborne pathogens

Injection safety

- Use a sterile, single-use, disposable needle and syringe for each injection and discard intact in an appropriate sharps container after use.
- Use single-dose medication vials, prefilled syringes, and ampules when possible. Do not administer medications from single-dose vials to multiple patients or combine leftover contents for later use.
- If multiple-dose vials are used, restrict them to a centralized medication area or for single patient use. Never re-enter a vial with a needle or syringe used on one patient if that vial will be used to withdraw medication for another patient. Store vials in accordance with manufacturer's recommendations and discard if sterility is compromised.
- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.
- Use aseptic technique to avoid contamination of sterile injection equipment and medications.

Patient-care equipment

- Handle patient-care equipment that might be contaminated with blood in a way that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to other patients and surfaces.
- Evaluate equipment and devices for potential cross-contamination of blood. Establish procedures for safe handling during and after use, including cleaning and disinfection or sterilization as indicated.

Work environment

- Dispose of used syringes and needles at the point of use in a sharps container that is puncture-resistant and leak-proof and that can be sealed before completely full.
- Maintain physical separation between clean and contaminated equipment and supplies.
- Prepare medications in areas physically separated from those with potential blood contamination.
- Use barriers to protect surfaces from blood contamination during blood sampling.
- Clean and disinfect blood-contaminated equipment and surfaces in accordance with recommended guidelines.

Hand hygiene and gloves

- Perform hand hygiene (i.e., hand washing with soap and water or use of an alcohol-based hand rub) before preparing and administering an injection, before and after donning gloves for performing blood sampling, after inadvertent blood contamination, and between patients.
- Wear gloves for procedures that might involve contact with blood and change gloves between patients.

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Nonfatal Residential Fire–Related Injuries Treated in Emergency Departments — United States, 2001

During 2000, the most recent year for which national mortality data are available, 3,907 persons died in the United States from fire-related injuries; residential fires accounted for 2,955 (76%) of these deaths (*1*). The National Fire Protection Association (NFPA) reported that approximately 396,500 residential fires occurred in 2001 (*2*). Injuries from residential fires are preventable by improving awareness of the common causes of fires and by using simple interventions (e.g., properly maintained smoke alarms [*3*] and fire escape plans). Surveillance of fire-related injuries can aid prevention by increasing the understanding of these injuries and by identifying at-risk populations to target for interventions and education. To characterize nonfatal residential fire–related injuries treated in U.S. hospital emergency departments (EDs) during 2001, CDC analyzed data from the National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP). This report summarizes the results of that analysis, which indicate that, in 2001, an estimated 25,717 nonfatal residential fire–related injuries were treated in U.S. hospital EDs. Fire prevention and safety interventions and education should target at-risk populations for fire-related injuries.

NEISS-AIP is operated by the U.S. Consumer Product Safety Commission (CPSC) and collects data about initial visits for all types and causes of injuries treated in U.S. EDs (*4*). NEISS-AIP data are drawn from a nationally representative subsample of 66 of 100 NEISS-AIP hospitals selected as a stratified probability sample of hospitals in the United States and its territories with a minimum of six beds and a 24-hour ED. NEISS-AIP provides data on approximately 500,000 injury- and consumer product–related ED cases each year. Data for each case include a comment variable that contains additional information about the circumstances of the injury.

Each case was assigned a sample weight based on the inverse probability of selection. These weights were added to provide national estimates of residential fire–related episodes. Confidence intervals (CIs) were calculated by using a direct variance estimation procedure that accounted for the sample weights and complex sample design. Rates were calculated by using 2001 U.S. Census bridged-race population estimates from the National Center for Health Statistics (*5*).

This analysis included ED patients treated for injuries incurred from unintentional residential fires. Only injuries with a specified location inside a residence were included. NEISS-AIP comment variables were reviewed for 772 patients whose injury was flame-related; for 656 (85%) patients, the location of the fire was identified. Patients were excluded if the episode involved only smoke or a flash fire, if the injuries were not the result of flames (e.g., scalds, hot surface burns, chemical burns, or electrical burns), or if the injury occurred outside a residence. Injuries to firefighters also were not included in the analysis. Patients who were dead on arrival or who died in EDs also were excluded. National estimates were based on weighted data for the 423 patients with injuries consistent with the case definition.

For 2001, an estimated 25,717 (95% CI = 20,443–30,991) residential fire–related injuries were treated in U.S. hospital EDs (rate: 9.0 per 100,000 population; 95% CI = 7.2–10.9) (Table). Rates were slightly higher for males (9.9; 95% CI = 7.9–11.8) than for females (8.2; 95% CI = 5.7–10.7). Persons aged 35–44 years had similar rates of ED visits (12.1; 95% CI = 9.0–15.3) as persons aged 25–34 years (11.8; 95% CI = 8.1–15.5). In 2001, the number of cases was highest in July (2,964; 95% CI = 1,616–4,312) and lowest in October (1,203; 95% CI = 513–1,893).

Overall, 5.9% (95% CI = 2.9%–8.9%) of persons with residential fire–related injuries were hospitalized. For all patients, 54.5% (95% CI = 38.3%–70.8%) had a principle diagnosis of anoxia (carbon monoxide poisoning and smoke inhalation), compared with 45.5% (95% CI = 29.2%–61.7%) with a diagnosis of burn. Among burn patients, the most common body parts affected were arm/hand (41.3%; 95% CI = 29.7%–53.0%) and head/neck (20.9%; 95% CI = 12.7%–29.1%).

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Editorial Note: The findings in this report indicate that an estimated 25,717 residential fire–related injuries were treated in U.S. EDs in 2001. This is the first report of nationally representative, nonfatal, residential fire–related injuries based on ED data. Although common injuries included anoxia and burns, patients with fire-related injuries also are at risk for having nonphysical injuries related to mental health (e.g., post-

TABLE. Number, percentage, and rate* of nonfatal residential fire–related visits to emergency departments (EDs), by selected characteristics — National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP), United States, 2001

Characteristic	No.	(%)	Rate	(95% CI†)
Age group (yrs)				
0–4	1,555	(6.0)	8.0	(3.5–12.6)
5–9	1,135§	(4.4)	—§	—§
10–14	1,765	(6.9)	8.5	(5.0–11.9)
15–19	2,006	(7.8)	9.9	(5.9–13.9)
20–24	1,860	(7.2)	9.5	(5.3–13.6)
25–34	4,666	(18.1)	11.8	(8.1–15.5)
35–44	5,467	(21.3)	12.1	(9.0–15.3)
45–54	2,369	(9.2)	6.0	(3.6–8.5)
55–64	2,330	(9.1)	9.2	(5.3–13.1)
≥65	2,564	(10.0)	7.3	(3.5–11.0)
Sex				
Male	13,781	(53.6)	9.9	(7.9–11.8)
Female	11,936	(46.4)	8.2	(5.7–10.7)
Month of ED visit				
January	2,226	(8.7)	0.8	(0.4–1.2)
February	1,338§	(5.2)	—§	—§
March	2,345	(9.1)	0.8	(0.4–1.2)
April	2,673	(10.4)	0.9	(0.5–1.4)
May	2,593	(10.1)	0.9	(0.6–1.3)
June	2,469	(9.6)	0.9	(0.4–1.4)
July	2,964	(11.5)	1.0	(0.6–1.5)
August	1,513	(5.9)	0.5	(0.2–0.8)
September	1,399	(5.4)	0.5	(0.2–0.7)
October	1,203§	(4.7)	—§	—§
November	2,359	(9.2)	0.8	(0.5–1.2)
December	2,635	(10.2)	0.9	(0.5–1.3)
Total	**25,717**	**(100.0)**	**9.0**	**(7.2–10.9)**

* Per 100,000 population.
† Confidence interval.
§ Estimates might be unstable because they are based on <20 NEISS-AIP cases, national estimates are <1,200, or the coefficient of variation of the estimate is >30%.

traumatic stress disorder) (*6*). These emotional consequences can have a lasting impact, especially on children (*7*).

Findings from NFPA data, which indicate that an estimated 15,575 civilians were injured in residential fires in 2001 (*2*), were 40% less than estimates in this report. These differences were expected because NFPA estimates were derived from the 2001 National Fire Experience Survey, which collected data from a representative sample of fire departments across the country and not from direct patient information. Injuries from unreported fires, fires that were attended solely by volunteer private fire brigades, or fires extinguished by fixed suppression systems without fire department response are not included in NFPA estimates.

According to NFPA, the leading causes of residential fires (including those without injury) are cooking equipment, heating equipment, incendiary devices or suspicious origins, electrical distribution equipment, and other equipment (*8*). For fires that involved an injury or death, smoking-related materials were the leading cause of fire-related deaths and the third leading cause of fire-related injuries, after cooking equipment and children playing with fire materials (*8*).

The findings in this report are subject to at least six limitations. First, this report captured only injuries treated in hospital EDs and did not include injuries for which ED care was not received. Second, NEISS-AIP does not provide information about outcomes after ED discharge. Third, NEISS-AIP narrative descriptions do not provide detailed information consistently about the circumstances and mechanisms of fires. Fourth, NEISS-AIP is designed to provide national estimates and does not provide state or local estimates. Fifth, because of small case numbers, NEISS-AIP data from 2001 do not allow for calculation of injury rates by race/ethnicity. Finally, because the locations where 15% of fire-related injuries occurred were not identified, the national estimates of such injuries probably are underestimated.

The U.S. Fire Administration (USFA), CPSC, CDC, and several nongovernment organizations are collaborating to prevent residential fires in the United States with the goal of eliminating residential fire–related deaths by 2020. Several prevention strategies can reduce the morbidity and mortality associated with residential fires (Box). Since 1998, CDC has funded smoke alarm installation and fire safety education programs in communities at high risk for fires. Through these programs, approximately 194,000 homes have been canvassed, and an estimated 142,000 smoke alarms have been installed. NFPA is sponsoring Fire Prevention Week during October 5–11, 2003. Additional information about residential fire safety and prevention is available through NFPA at http://www.nfpa.org, USFA at http://www.usfa.fema.gov, and CDC at http://www.cdc.gov/ncipc/duip/spotlite/fire_prevention.htm.

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BOX. Prevention strategies to reduce residential fire–related injuries

- Never leave food unattended on a stove.
- Keep cooking areas free of flammable objects (e.g., potholders and towels).
- Avoid wearing clothes with long, loose-fitting sleeves when cooking.
- Never smoke in bed or leave burning cigarettes unattended.
- Do not empty smoldering ashes in a trash can, and keep ashtrays away from upholstered furniture and curtains.
- Never place portable space heaters near flammable materials (e.g., drapery).
- Keep all matches and lighters out of the reach of children. Store them up high, preferably in a locked cabinet.
- Install smoke alarms on every floor of the home, including the basement, and particularly near rooms in which persons sleep.
- Use long-life smoke alarms with lithium-powered batteries and hush buttons, which allow persons to stop false alarms quickly. If long-life alarms are not available, use regular alarms, and replace the batteries annually.
- Test all smoke alarms every month to ensure they work properly.
- Devise a family fire escape plan and practice it every 6 months. In the plan, describe at least two different ways each family member can escape every room, and designate a safe place in front of the home for family members to meet after escaping a fire.
- If possible, install or retrofit fire sprinklers into home.

Sources: Adapted from recommendations of the U.S. Consumer Product Safety Commission, the U.S. Fire Administration, the National Fire Protection Agency, and CDC.

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Local Transmission of *Plasmodium vivax* Malaria — Palm Beach County, Florida, 2003

The majority of malaria cases diagnosed in the United States are imported, usually by persons who travel to countries where malaria is endemic (*1*). However, small outbreaks of locally acquired mosquito-transmitted malaria continue to occur (*2*). Despite certification of malaria eradication in the United States in 1970 (*3,4*), 11 outbreaks involving 20 cases of probable locally acquired mosquito-transmitted malaria have been reported to CDC since 1992 (*5–7*), including two reported in July 1996 from Palm Beach County, Florida (Palm Beach County Health Department, unpublished data, 1998). This report describes the investigation of seven cases of locally acquired *Plasmodium vivax* malaria that occurred in Palm Beach County during July–August 2003. In addition to considering malaria in the differential diagnosis for febrile patients with a history of travel to malarious areas, healthcare providers also should consider malaria as a possible cause of fever among patients who have not traveled but are experiencing alternating fevers, rigors, and sweats with no obvious cause.

Case Reports

Case 1. On July 24, a man aged 37 years was admitted to hospital A with a 6-day history of fever, chills, headache, anorexia, and vomiting. On July 25, *P. vivax* was identified on a blood smear. The patient recovered after treatment with doxycycline, quinine, and primaquine. The patient is a plumber who reported working outside during the day but who stayed indoors at night.

Case 2. On July 22, a man aged 46 years reported to the emergency department (ED) of hospital A with a 3-day history of fever, headache, chills, anorexia, nausea, vomiting, dehydration, and malaise. He was treated with intravenous fluids and discharged with levofloxacin. On July 24, he returned to the ED with worsening symptoms and was admitted with a diagnosis of pneumonia. On July 25, *P. vivax* was identified on a blood smear. The patient recovered after treatment with doxycycline, quinine, and primaquine. The patient is a construction worker who reported working outside.

Case 3. On August 15, a man aged 32 years was admitted to hospital A with a 33-day history of fever, chills, headache, vomiting, and intermittent sweating. He had consulted several physicians for his symptoms and had been treated unsuccessfully with azithromycin and prednisone. On the day of admission, *P. vivax* was identified on a blood smear. The patient recovered after treatment with doxycycline, quinine, and primaquine. He reported having played golf and tennis in the evenings.

Case 4. On August 19, a man aged 45 years visited the ED of hospital A with a 2-day history of fever, chills, anorexia, arthralgias, and diarrhea and was discharged on ibuprofen. The patient visited the ED again on August 21 for these same symptoms, was evaluated, and discharged. On August 22, he returned to the ED with worsening symptoms and mental

confusion and was admitted; a blood smear demonstrated the presence of *P. vivax*. He recovered after treatment with chloroquine and primaquine. The patient slept in a homeless camp in a wooded area near a canal. He reported using insect repellent.

Case 5. On August 24, a man aged 23 years was admitted to hospital A with a 12-day history of fever, chills, arthralgias, diarrhea, and vomiting. On the day of admission, *P. vivax* was identified on a blood smear. He had visited the ED several days previously with the same complaints and had been treated with antibiotics for a respiratory infection. The patient recovered after treatment with chloroquine and primaquine. He reported fishing at a community pond in the evenings.

Case 6. On August 25, a person aged 17 years was admitted to hospital B with an 8-day history of fever, chills, and headaches. On August 26, *P. vivax* was identified on a blood smear. He recovered after treatment with doxycycline, quinine, and primaquine. The patient is a student and reported spending time at a pond near his house.

Case 7. On August 26, a man aged 48 years was admitted to hospital C with a 7-day history of fever and chills. He had self-treated earlier that week with antibiotics. *P. vivax* was identified on a peripheral blood smear on the day of admission. He recovered after treatment with chloroquine and primaquine. The patient is a carpenter and works until 8 p.m. in an open warehouse.

Epidemiologic Investigation

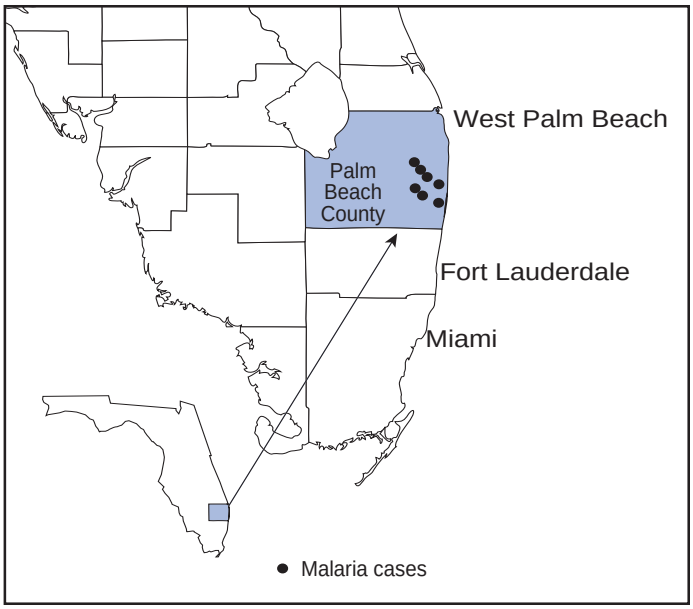
All seven patients reported having no previous history of malaria, recent blood transfusion, organ transplantation, or intravenous drug use. Six of the seven patients reported never having traveled to regions where malaria is endemic. Patient 7 emigrated to the United States from Bogota, Colombia, in July 2001; although Bogota is free of malaria transmission, malaria is endemic in some areas of Colombia.

All seven patients live within the West Palm Beach area (Figure) within 10 miles of Palm Beach International Airport. No international seaport exists nearby. Patients 1 and 2 attended the same local party on July 4. None of the other patients had any known common activities or interactions.

Laboratory Investigation

Blood specimens were reviewed, and *P. vivax* infection was confirmed by both microscopic diagnosis and polymerase chain reaction rRNA gene analysis. In addition, parasite multilocus genotyping confirmed that all seven patients were infected by the same strain of *P. vivax.*

FIGURE. Location of cases of Malaria — Palm Beach County, Florida, July–August, 2003



Entomologic Investigation

Targeted mosquito trapping was conducted within 1 mile of the homes of patients. *Anopheles quadrimaculatus* (n = 33) and *An. crucians* (n = 425) were tested by CDC. None demonstrated the presence of malaria parasites.

Prevention Measures and Enhanced Surveillance Activities

Several strategies to prevent further transmission of malaria and to enhance case detection were implemented by the Palm Beach County Health Department. Reverse 911 telephone calls delivering a prerecorded message, warning of the presence of malaria in the region and advising the use of prevention measures, were made to all homes in the county; approximately 300,000 residents were reached. Postcards in multiple languages were mailed to residents. Flyers and posters in English and Spanish were distributed at soup kitchens, trailer parks, and at outdoor activities at which persons were at high risk for malaria. Local media were encouraged to provide relevant malaria messages in multiple languages. Multilingual notices were sent home with all public school students.

Several local homeless camps were visited to distribute brochures and insect repellent. Case-finding was conducted after reports of fever in these camps. One person was evaluated for malaria, but his smears did not demonstrate the presence of malaria parasites.

Notices were sent to local physicians and hospitals by e-mail, fax, and mail, informing them of the presence of malaria and

requesting information and advising testing for persons with a history of unexplained fever.

Mosquito-control practices were already in place in Palm Beach County for control of the West Nile virus vector and nuisance mosquitoes. Additional mosquito spraying was implemented within a 3-mile radius of the homes of each malaria patient.

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Editorial Note: This outbreak shares common features with other outbreaks of malaria reported previously in the United States, including 1) an initial introduced case without risk factors for malaria, 2) presence of competent malaria vectors, 3) proximity to a person with malaria parasitemia, and 4) environmental conditions conducive to the maturation of the parasite in the mosquito. Possible infected persons providing a source for this outbreak in Palm Beach County include both international travelers and the immigrant population, including migrant farm laborers from Mexico and Central and South America.

This outbreak represents the first reported outbreak of malaria with extended transmission in the United States since 1986 (*8,9*). Early cases might have been sources of subsequent cases or ongoing transmission might have resulted from an index patient with unresolved parasitemia being the source for each subsequent case. Also unique to this outbreak has been the use of molecular techniques to genetically type the strain of the infecting parasite. These results support the hypothesis that this cluster of cases was the result of extended malaria transmission originating from a single infected person.

This outbreak demonstrates the potential for reintroduction of malaria into the United States despite intensive surveillance, vector-control activities, and local public health response to educate clinicians and the community. Rapid recognition, accurate diagnosis, and appropriate case management are essential for limiting the spread of a malaria outbreak. If an outbreak has occurred, clinicians must consider malaria in the diagnosis of any patient with fever without apparent cause. Prevention of mosquito bites through personal protection measures (e.g., using insect repellent containing DEET) and vector control are important measures to limit transmission. Risks for locally acquired malaria are unlikely to abate given migration and travel patterns and a global yearly

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malaria burden of 300–500 million cases and one million deaths. However, prompt reporting of patients with malaria to public health authorities and adequate assessment of risk factors for malaria in all cases allows initiation of an appropriate public health response to prevent reestablishment of malaria transmission.

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Update: Influenza Activity — United States and Worldwide, May–September 2003

During May–September 2003, influenza A(H3N2) viruses circulated worldwide and were associated with mild to moderate levels of disease activity. Influenza A(H1)* and B viruses were reported less frequently. In North America, isolates of influenza A(H3N2), A(H1), and B were identified sporadically. This report summarizes influenza activity in the United States and worldwide during May–September 2003†. Influenza activity in North America typically peaks during December–March, which underscores the need to begin vaccinating against influenza in October and to continue vaccination into December and throughout the influenza season (*1*).

United States

In the United States, influenza surveillance is conducted by a network comprising four components, including approximately 900 sentinel health-care providers who regularly report data on patient visits for influenza-like illness (ILI) and approximately 120 U.S.-based World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories that report the number of respiratory specimens tested and the number and type of influenza viruses identified during October–mid-May (*2*). In 2003, approximately 300 sentinel providers and 65 WHO and NREVSS collaborating laboratories continued to submit weekly reports after mid-May. During May 18–September 13, the weekly percentage of patient visits to sentinel providers for ILI ranged from 0.5% to 0.9%, and WHO and NREVSS collaborating laboratories tested 9,145 respiratory specimens, of which 68 (0.7%) were positive. Of the positive results, 31 (45.6%) were influenza A(H3N2) viruses, 25 (36.8%) were influenza type-B viruses, seven (10.3%) were influenza A(H1) viruses, and five (7.0%) were influenza A viruses that were not subtyped. Influenza A viruses were reported each week during mid-May–mid-August. Influenza B viruses were reported for 5 consecutive weeks during mid-May–mid-June and during the week ending August 2. As of September 19, no influenza viruses have been reported for September.

Worldwide

During May–July, influenza A(H3N2) viruses predominated in Africa (Madagascar and South Africa). In Asia, influenza A(H3N2) viruses predominated in Hong Kong and Thailand and were reported in Bangladesh, China, Guam, Indonesia, Japan, and Singapore. In Oceania (Australia, New Caledonia, and New Zealand), A(H3N2) viruses predominated and were associated with widespread activity in Australia and New Zealand. In Latin America, influenza A(H3N2) viruses predominated in Brazil, Chile, and Uruguay. Influenza A(H3N2) viruses also circulated widely in Argentina and were isolated in El Salvador, French Guiana, Paraguay, and Peru. During May–August, sporadic cases of influenza A(H3N2) infection were reported in North America (Canada and Mexico) and Europe (Latvia, Norway, and the United Kingdom). Influenza A(H1) viruses predominated in Argentina and also were reported from Brazil, Chile, French Guiana, Iceland, New Zealand, Peru, South Africa, Trinidad and Tobago, the United Kingdom, and Uruguay. In Africa, influenza B viruses were reported in May (Morocco) and July (South Africa). A small number of influenza B viruses were identified in Asia (Bangladesh, Hong Kong, Japan, and Thailand), South

* Includes both the A(H1N1) and A(H1N2) influenza virus types. The influenza A(H1N2) strain appears to have resulted from the reassortment of the genes of the circulating influenza A(H1N1) and A(H3N2) subtypes. Because the hemagglutinin proteins of the A(H1N2) viruses are similar to those of the circulating A(H1N1) viruses and the neuraminidase proteins are similar to the circulating A(H3N2) viruses, the 2003–04 influenza vaccine should provide protection against A(H1N2) viruses.

† As of September 19, 2003.

America (Argentina, Brazil, Peru, and Uruguay), and Australia. During May, influenza B viruses were reported in Canada, Latvia, Mexico, and the United Kingdom.

Characterization of Influenza Virus Isolates

WHO's Collaborating Center for Surveillance, Epidemiology, and Control of Influenza located at CDC analyzes influenza virus isolates received from laboratories worldwide. Of 91 influenza A(H1) viruses (84 from Latin America, five from the United States, one from Africa, and one from Oceania) collected during May–September and characterized antigenically at CDC, all were similar to A/New Caledonia/20/99, the H1N1 component of the 2003–04 influenza vaccine. Of the 254 influenza A(H3N2) viruses (172 from Latin America, 49 from Asia, 28 from North America [including 22 from the United States], four from Africa, and one from Oceania) that were characterized antigenically, 178 (70.1%) were similar to A/Panama/2007/99, the H3N2 component of the 2003–04 influenza vaccine, and 76 (29.9%) had reduced titers to A/Panama/2007/99.

Influenza B viruses circulating worldwide can be divided into two antigenically distinct lineages represented by B/Yamagata/16/88 and B/Victoria/2/87. Before 1991, B/Victoria lineage viruses circulated worldwide, but from late 1991 to early 2001, no viruses of the B/Victoria lineage were identified outside Asia. However, since March 2001, B/Victoria-lineage viruses have been identified in many countries outside Asia, including the United States. Viruses of the B/Yamagata lineage began circulating worldwide in 1990 and continue to be identified. The B component of the 2003–04 influenza vaccine belongs to the B/Victoria lineage. Of the four influenza B isolates collected during May–September and characterized antigenically at CDC, two belonged to the B/Victoria lineage and two to the B/Yamagata lineage. Both B/Victoria-lineage viruses were similar to B/Hong Kong/330/01, the B component of the 2003–04 influenza vaccine, and both were from North America (including one from the United States). Of the two B/Yamagata-lineage viruses, one was from the United States, and one was from Asia.

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Editorial Note: During May–September 2003, influenza A(H3N2) viruses were the most frequently reported influenza virus type/subtype worldwide, but influenza A(H1) and B viruses also circulated. The influenza virus type/subtype that will predominate and the severity of influenza-related disease activity for the 2003–04 influenza season cannot be predicted.

Influenza vaccine is recommended for persons at high risk for experiencing influenza-related complications (e.g., persons aged ≥65 years and persons aged 6 months–64 years with certain medical conditions), health-care workers, and household contacts of persons at high risk (*1*). Influenza vaccine also is recommended for persons aged 50–64 years because they have an elevated prevalence of certain chronic medical conditions. Because young, healthy children are at increased risk for influenza-related hospitalization, vaccination of children aged 6–23 months and household contacts and caregivers of children aged ≤23 months is encouraged when feasible. In addition to the groups for whom influenza vaccination is recommended, influenza vaccine can be administered to anyone who wants to reduce the likelihood of becoming ill with influenza.

Because vaccine supplies for 2003 are expected to be plentiful, no staggering of vaccination is recommended. The optimal time for influenza vaccination is during October–November. Influenza vaccine manufacturers have indicated that production and distribution of influenza vaccine for the 2003–04 season is proceeding on schedule, allowing for sufficient supply of influenza vaccine during October–November (*3*). Therefore, influenza vaccination can proceed for all persons, whether healthy or at high risk, either individually or through mass campaigns, as soon as vaccine is available.

In June 2003, the Food and Drug Administration approved live, attenuated influenza vaccine for use among healthy persons aged 5–49 years. This vaccine is administered intranasally rather than by intramuscular injection and offers another option for the prevention of influenza among the approved groups, including health-care workers and close contacts of persons at high risk. The Advisory Committee on Immunization Practices has published supplementary recommendations for the use of this vaccine (*4*).

Influenza surveillance reports for the United States are published weekly during October–May and are available through CDC's voice (telephone, 888-232-3228) and fax (telephone, 888-232-3299, document number 361100) information systems and at http://www.cdc.gov/ncidod/diseases/flu/weekly.htm. Additional information about influenza viruses and influenza surveillance is available at http://www.cdc.gov/ncidod/diseases/flu/fluvirus.htm, and additional information on influenza vaccine is available at http://www.cdc.gov/nip/flu/default.htm.

Acknowledgments

This report is based on data contributed by WHO collaborating laboratories; National Respiratory and Enteric Virus Surveillance System laboratories; Sentinel Providers Influenza Surveillance System; World Health Organization National Influenza Centers, Communicable Diseases, Surveillance and Response, World Health Organization, Geneva, Switzerland. A Hay, PhD, WHO Collaborating Center for Reference and Research on Influenza, National Institute Medical Research, London, England. I Gust, MD, A Hampson, WHO Collaborating Center for Reference and Research on Influenza, Parkville, Australia. M Tashiro, MD, WHO Collaborating Center for Reference and Research on Influenza, National Institute of Infectious Diseases, Tokyo, Japan.

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Laboratory Surveillance for Wild and Vaccine-Derived Polioviruses, January 2002–June 2003

After the 1988 World Health Assembly resolution to eradicate poliomyelitis, the Global Laboratory Network for Poliomyelitis Eradication (the laboratory network) was established by the World Health Organization (WHO) (*1*). The laboratory network is one component of an international surveillance system for detecting polioviruses through laboratory investigation of stool samples from persons with acute flaccid paralysis (AFP). This infrastructure is critical for guiding strategies to eradicate polio globally (*2–4*). This report summarizes the laboratory network's performance and describes the location and characterization of wild poliovirus (WPV) and vaccine-derived poliovirus (VDPV) during January 2002–June 2003. The achievement and maintenance of polio eradication globally requires the continued support of national governments and partner agencies.

Laboratory Network Performance

The laboratory network covers all six WHO regions and comprises 145 laboratories whose responsibilities include poliovirus isolation, intratypic differentiation (ITD) to distinguish WPV and VDPV, and genomic sequencing. The network encompasses 123 national (83 national and 40 subnational), 15 regional, and seven international specialized laboratories. Laboratories report results weekly to national, regional, and international health authorities.

Laboratory performance quality is evaluated through a WHO accreditation program that includes proficiency testing, annual performance review, and use of standard indicators to evaluate the timeliness and accuracy of laboratory results. In 2002, of the 145 laboratories, 133 (92%) were fully accredited, 10 (7%) were provisionally accredited (reflecting satisfactory performance in proficiency tests but deficiency in another aspect of the work), and two (1%) were not accredited. While implementing measures to improve performance, nonaccredited laboratories split samples for parallel testing in accredited laboratories. During 2002–2003, all samples from persons with AFP were tested in WHO-accredited laboratories.

In 2002, network laboratories processed 71,478 specimens (Table 1), an increase of 10% compared with 2001 and 17% compared with 2000 (*2*). Despite this increased workload, targets for indicators measuring laboratory efficiency continued to be met, including percentage of cases with poliovirus

TABLE 1. Number of specimens and poliovirus (PV) isolates, percentage of specimens with nonpolio enterovirus (NPEV) isolated, and timing of results, by World Health Organization (WHO) region and year, January 2002–June 2003

	January–December 2002						January–June 2003					
WHO region	No. specimens	No. PV isolates: Wild	No. PV isolates: Sabin	% specimens with NPEV isolated	% results within 28 days	% ITD* results within 60 days	No. specimens	No. PV isolates: Wild	No. PV isolates: Sabin	% specimens with NPEV isolated	% results within 28 days	% ITD results within 60 days
African	17,073	369	853	15	94	44	7,560	180	157	13	98	57
Americas	1,972	0	29	15	68	84	743	0	11	13	78	90
Eastern Mediterranean	9,349	147	162	14	96	91	5,240	60	81	15	95	93
European	4,607	0	178	8	96	96	1,876	0	46	4	89	87
South-East Asian	25,202	2,830	1,114	21	91	90	9,309	166	535	15	99	92
Western Pacific	13,275	0	612	9	91	45	4,504	0	155	6	92	59
Total	**71,478**	**3,346**	**2,948**	**15**	**92**	**83**	**29,232**	**406**	**985**	**12**	**96**	**87**

* Intratypic differentiation.

isolation results available within 28 days of receipt of specimen (target: ≥80%) and percentage of differentiation results available within 60 days of onset of paralysis (target: ≥80%). In 2002, all regions met the 28-day target, and four regions (all except the African and Western Pacific regions) met the 60-day target. The proportion of specimens with nonpolio enterovirus (NPEV) isolated is used as a combined indicator of quality of specimen transport and sensitivity of laboratory processing; a rate of ≥10% usually is considered acceptable. The global NPEV isolation rates were 15% for 2002 and 12% for January–June 2003. The NPEV isolation rate was ≥10% for all regions except the European and Western Pacific regions. During January 2002–June 2003, genomic sequencing was performed for 90% of all WPVs. Genomic sequencing results usually were available within 2–4 weeks of virus detection, with the exception of viruses from India, where a large outbreak occurred and sequencing of all outbreak isolates was not necessary.

WPV Serotypes

WPV was detected in nine countries during 2002 and in eight countries during January–June 2003 (Table 2). In 2001, WPV was detected in 15 countries. During January 2002–June 2003, both WPV type 1 (P1) and type 3 (P3) were detected in five countries (Afghanistan, India, Niger, Nigeria, and Pakistan), P1 was detected in five countries (Burkina Faso, Egypt, Ghana, Lebanon, and Zambia), and P3 was detected in Somalia (Table 2). The last WPV type 2 (P2) was detected in October 1999 from a patient in Uttar Pradesh, India (*5*). However, in India during late 2002–early 2003, P2 reference strains (MEF-1) were isolated from seven persons with AFP, one healthy child, and an environmental sample (*6,7*). MEF-1 is used commonly as a reference or control strain in various laboratory procedures or as the P2 component in production of inactivated polio vaccine. The isolation of MEF-1 from AFP cases in India is unusual; investigations are ongoing.

Among the 11 countries in which WPV was detected during January 2002–June 2003, genomic sequencing results indicated that seven countries (Afghanistan, Egypt, India, Niger, Nigeria, Pakistan, and Somalia) experienced indigenous transmission. Four countries experienced importations from countries in which polio is endemic; the Burkina Faso (2002) and Ghana (2003) viruses were imported from the Nigeria/Niger reservoir, the Lebanon (2003) virus from India, and the Zambia (2002) virus from Angola. Genomic sequencing results from the laboratory network have documented a steady reduction in the number of WPV genotypes. During 2001–2002, the number of surviving type-1 genotypes decreased from eight to four, and the number of surviving type-3 genotypes decreased from six to three.

TABLE 2. Number of detected wild poliovirus (WPV) isolates from persons with acute flaccid paralysis (AFP), by World Health Organization (WHO) region/country and serotype, January 2002–June 2003

WHO region/ Country	January–December 2002				January–June 2003			
	No. WPV isolates	Serotype*			No. WPV isolates	Serotype		
		P1	P2	P3		P1	P2	P3
African								
Burkina Faso	1	1	0	0	0	0	0	0
Ghana	0	0	0	0	3	3	0	0
Niger	3	1	0	2	2	2	0	1
Nigeria	202	174	0	28	91†	38	0	52
Zambia	2	2	0	0	0	0	0	0
Americas	0	0	0	0	0	0	0	0
Eastern Mediterranean								
Afghanistan	10	5	0	5	1	0	0	1
Egypt	7	7	0	0	1	1	0	0
Lebanon	0	0	0	0	1	1	0	0
Pakistan	90	67	0	23	41	25	0	16
Somalia	3	0	0	3	0	0	0	0
European	0	0	0	0	0	0	0	0
South-East Asian								
India	1,603§	1,487	0	116	90	80	0	10
Western Pacific	0	0	0	0	0	0	0	0
Total	**1,921**	**1,744**	**0**	**177**	**230**	**150**	**0**	**80**

* P1 = poliovirus type 1; P2 = poliovirus type 2; P3 = poliovirus type 3.
† Includes one WPV isolate in which both type-1 and type-3 viruses were detected.
§ Includes three WPV isolates in which both type-1 and type-3 viruses were detected.

VDPVs

The first known VDPV outbreak occurred in Hispaniola in 2000 (*2*); in January 2001, network laboratories began screening for VDPV. In March 2001, three cases of AFP associated with VDPV isolates were detected in the Philippines (*8*). All poliovirus isolates identified through AFP surveillance undergo two methods of ITD testing. Isolates with dissimilar results in the ITD tests are sequenced, and viruses with 1%–15% sequence divergence from the Sabin virus are considered to be VDPV (*2*). During January 2002–June 2003, a total of 3,933 Sabin-related isolates were sequenced; 17 (<1%) were identified as VDPVs (Table 3). These 17 VDPV isolates came from nine persons with AFP; eight had two positive isolates, and one had one positive isolate. Four cases were associated with an outbreak in Madagascar in 2002 (*9,10*), and five cases (China [two], Kazakstan [one], Nigeria [one], and Romania [one]) were not associated with an outbreak. During this period, three other VDPVs were reported to the laboratory network from sources other than the network's screening of AFP cases: one (type 1) from a healthy, nonparalyzed child in Mongolia, one (type 2) from a sewage sample collected in Slovakia, and one (type 3) from a sewage sample collected in Estonia.

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Editorial Note: During January 2002–June 2003, the laboratory network provided data to monitor progress toward the goal of polio eradication. The laboratory network documented the polio-free status of the three WHO regions (the Americas, European, and Western Pacific regions) that have achieved certification. In the countries where polio remains endemic, the laboratory network generated data on the location of virus circulation and the geographic origin of the virus, which are essential for guiding polio vaccination and surveillance activities. Providing virology results within 60 days of paralysis onset for ≥80% of cases of persons with AFP investigated has facilitated timely response in the four regions that have achieved this standard. The laboratory network's high performance level and virus detection sensitivity as measured through NPEV isolation rates ensure that poliovirus probably would be detected if present in specimens collected through the AFP surveillance system.

The laboratory network has provided timely and complete genomic sequencing data that have been used to trace the origin of viruses imported into polio-free areas, interpret virus transmission patterns during outbreaks, and document the progress of eradication by measuring the extinction of genotypes. Screening for VDPV led to the detection of a VDPV outbreak in Madagascar in 2002 and provided data for identifying potential risk factors for VDPV outbreaks in the polio-free era. As polio eradication nears, integrating all possible sources of detection of poliovirus with the AFP surveillance system is critical. The laboratory network has expanded its mandate further by integrating results from other non-AFP sources, including environmental surveillance, into routine reporting.

Challenges facing the laboratory network include a growing workload and the need to provide virology results more quickly. Turnaround times have been shortened through the increased frequency of shipping samples from the field and among laboratories. However, this has increased costs at a time of a funding shortage for the polio-eradication program. In addition, the reassignment of trained staff to other public health activities, especially in polio-free areas, poses a risk to sustaining high-quality laboratory performance. WHO and its partners are developing a 5-year strategic plan to define requirements for sustaining the polio laboratory network's performance at least until global certification of polio eradication. The plan will address technical and resource needs of the laboratory network and will be used for resource mobilization. The continued support of national governments and partner agencies* is essential to ensure the achievement and maintenance of polio eradication globally.

TABLE 3. Number of vaccine virus isolates* from persons with acute flaccid paralysis, by World Health Organization (WHO) region, January 2002–June 2003

WHO region	Sabin-like§	VDPV† cVDPV¶ isolates	VDPV† iVDPV** isolates	VDPV† Other VDPV††	Total
African	1,001	7	0	2	**1,010**
Americas	40	0	0	0	**40**
Eastern Mediterranean	243	0	0	0	**243**
European	220	0	0	4	**224**
South-East Asian	1,649	0	0	0	**1,649**
Western Pacific	763	0	0	4	**767**
Total	**3,916**	**7**	**0**	**10**	**3,933**

* Poliovirus isolates with one or two intratypic differentiation (ITD) results indicating vaccine virus.
† Vaccine-derived poliovirus: a vaccine virus with ≥1% sequence difference compared with Sabin vaccine virus.
§ Either concordant Sabin-like results in ITD tests or <1% sequence difference compared with Sabin vaccine virus.
¶ Circulating VDPV.
** VDPV associated with an immunodeficient person.
†† VDPV not associated with an outbreak or immunodeficiency.

*WHO; Rotary International; United Nations Children's Fund (UNICEF); U.S. Agency for International Development (USAID); United Nations Foundation; Lederle-Wyeth American Association for World Health; Canadian International Development Agency; Japan International Cooperation Agency; Australian Agency for International Development; national governments, especially the governments of Bhutan, Finland, Italy, Sri Lanka, Thailand, and the Netherlands; and CDC.

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Update: Detection of West Nile Virus in Blood Donations — United States, 2003

On September 18, 2003, this report was posted on the MMWR *website (http://www.cdc.gov/mmwr).*

During the 2002 epidemic of West Nile virus (WNV) in the United States, a total of 23 persons were reported to have acquired WNV infection after receipt of blood components from 16 WNV-viremic blood donors (*1*), and an estimated 500 viremic donations might have been collected (B. Biggerstaff, Ph.D., CDC, personal communication, 2003). Because of the possibility of recurrent WNV epidemics in the United States, blood collection agencies (BCAs) recently implemented WNV nucleic acid–amplification tests (NATs) to screen all donations and quarantine and retrieve potentially infectious blood components. This report describes the performance of national blood donation screening during the WNV epidemic of 2003 and documents the first transfusion-associated WNV transmissions identified in 2003. Healthcare providers should report suspected cases of transfusion-associated WNV transmission to state health authorities; state health departments receiving such reports are encouraged to notify CDC.

Surveillance and Testing Activities

Experimental screening tests were implemented to help identify viremic donations and prevent NAT-reactive blood components from entering the blood supply. WNV screening is performed using minipools (MPs) of six or 16 different donation samples depending on the manufacturer format. A reactive donation is identified when an index donation that is part of a reactive MP of plasma samples also is found to be reactive on individual donation testing (IDT). Donors are asked to participate in a follow-up study to confirm WNV infection, and the implicated donations and follow-up samples undergo confirmatory testing to determine if WNV is present. Blood components from donations that were not reactive in the MP or IDT screening test are released for transfusion, and all components made from IDT-reactive donations are discarded.

Several large BCAs that account for approximately 95% of the nation's civilian blood donations and 100% of the military donations provide weekly summaries of WNV screening data to CDC and the Food and Drug Administration (FDA) that are used to evaluate the national screening effort. From late June to mid-September 2003, approximately 2.5 million donations were screened for WNV; 1,285 (0.05%) were initially reactive for WNV by using nucleic acid-amplification tests (NAT) implemented under FDA's investigational new drug (IND) mechanisms (*2*). Of these 1,285 donations, 601 (0.02% of the total donations) are considered presumptive viremic donations (PVDs) (i.e., a donation that is repeatedly reactive by the primary and/or alternate NAT assay or a primary NAT assay with a very high signal). Results of additional testing are pending for 209 initially reactive donations. For surveillance purposes, PVDs are reported by blood bank directors to state health departments with the results of testing; the date of the donation; and the donor's age, sex, and county of residence. The majority of states then provide this information to ArboNET, a cooperative surveillance project between CDC and 57 state and local health departments that monitors domestic arbovirus activities.

As of September 16, 2003, a total of 489 WNV-viremic blood donors have been reported to ArboNET. States reporting >50 PVDs to ArboNET include Colorado (154 donors), Nebraska (116), and South Dakota (56). During July 1–September 16, a total of 19 counties in four states (Colorado [five counties], Nebraska [10], South Dakota [two], and Wyoming [one]) reported at least five PVDs. Demographic information was available for 333 of these donors. The mean age was 45 years (range: 15–83 years); 181 (54%) were male. Dates of detection ranged from June 25 to September 12. Of these 333 persons, 296 (89%) remained asymptomatic after

donation, 35 (11%) had WNV-associated fever, and two (0.7%) had WNV-associated meningoencephalitis.

To evaluate the sensitivity of the MP-NAT screening algorithm, a large BCA retested archived individual samples collected in regions with high MP-NAT yield rates that had tested nonreactive previously in MPs. Detection of samples reactive under IDT triggered immediate quarantine and retrieval to prevent transfusion of corresponding components. However, some associated components already had been transfused on the basis of nonreactive MP-NAT screening results before the ID-NAT results were obtained. Additional WNV RNA and WNV-specific IgM antibody testing of the IDT-reactive donation specimens and follow-up donor samples were conducted to confirm reactivity. As part of standard operating procedures, blood component recipients are notified if these results indicated that the IDT-NAT reactivity was WNV-specific. As of September 16, two cases of confirmed transfusion-associated WNV transmission have been identified.

Case Reports

Case 1. On July 29, a Texas man aged 48 years donated blood at a regional blood center. Initial WNV screening using a 16-donation sample MP-NAT was nonreactive, and the associated blood components were released for transfusion. On August 14, as part of the retrospective study, samples in this nonreactive MP were retested as individual samples. On retesting by IDT-NAT, the implicated donation was reactive. Previously issued components were recalled immediately by using standard operating procedures for withdrawal; the plasma was destroyed, and the platelets had not been transfused before expiration. The index donation sample was retested individually and found to be reactive; this was confirmed subsequently by using different NAT formats. Viral load testing is pending. The sample tested negative for WNV-specific IgM and IgG antibodies. On follow-up, the donor reported that he had not had any symptoms during the preceding month; a blood sample collected at 30 days after the index donation was ID-NAT nonreactive but positive for WNV-specific IgM and IgG antibody at a commercial laboratory, consistent with acute WNV infection and seroconversion.

Before retrospective testing and recall of blood components, packed red blood cells from this implicated donation had been transfused into a Texas man aged 71 years who had undergone aortic graft surgery on the preceding day; an additional four components from MP-NAT negative donations (all determined to be IDT-NAT nonreactive) were transfused the same day. At the time of transfusion, the patient was in poor

health and had sepsis. Fever and signs of encephalitis compatible with WNV infection were identified on the third day after transfusion; WNV infection in the recipient was documented by the development of WNV-specific IgM and neutralizing antibody by the 11th day after the transfusion of the implicated component. In addition, NAT of the recipient's serum from the second, seventh, and 11th days after transfusion all indicated the presence of WNV RNA. As of September 16, the patient was recovering.

Case 2. On August 4, a Nebraska man aged 80 years received 27 blood components following cardiac surgery, including packed red blood cells (from eight donors), platelets (12 donors), and fresh frozen plasma (six donors). The patient was discharged on August 14. On August 17 (13 days after transfusions), he had mental confusion followed by fever, and he was rehospitalized with a diagnosis of encephalitis. Serum and cerebrospinal fluid collected on August 20 were positive for WNV IgM by capture ELISA. As of September 16, the patient was recovering.

All of the 26 persons who donated the blood products received by this patient were residents of southeast Nebraska who donated locally: six in February 2003 and 20 from late July to early August. At the time of donation, serum from these 20 donors was screened for WNV using MPs of six donors; all MPs containing these donations were nonreactive. The six donations collected during February 2003 were collected before the institution of WNV testing in the United States and were not screened for WNV.

The Nebraska Health and Human Services System identified samples of the original donations from the 20 persons who donated from late July to early August, 2003. These 20 samples were tested by NAT at three different laboratories; one sample tested reactive or equivocal in all three laboratories. A convalescent serum sample was obtained from the implicated donor 45 days after the initial donation. Serum from the initial donation did not contain WNV-specific IgM antibody; however, the convalescent serum sample did contain antibody, demonstrating seroconversion. Other components from this donor were quarantined on reporting of WNV infection in the index patient; no other components from this donation were transfused.

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Editorial Note: Nearly all human WNV infections result from mosquito bites; however, transfusion-associated WNV transmission resulted in a small number of WNV infections in 2002 (*1*). Implementation of national blood donor screening for WNV in 2003 has reduced this risk substantially by removing hundreds of units of potentially infectious blood donated by asymptomatic donors. WNV titers in infectious blood components have been documented as low as 0.8 plaque-forming units/mL during the 2002 investigations (*1*) and are lower than the titers seen in other screened blood-borne viral pathogens such as human immunodeficiency virus or hepatitis C virus. Despite these low levels, all of the infectious components identified in the 2002 investigations would have been detected by using the current investigational assays in a MP-NAT format. The two cases of transfusion-associated WNV transmission reported here illustrate that potentially infectious units can escape detection due to very low viremia or other possible mechanisms; for this reason, the risk for transmission has not been eliminated.

Because MP screening might not detect low-level viremic donations, a large BCA initiated the retrospective testing study of MP-NAT nonreactive samples as individual samples to determine the frequency of blood with low-level WN viremia in blood banks serving regions experiencing a large number of mosquito-borne human infections. The findings of this study suggest the need to develop more sensitive screening NATs for use in MP testing; if BCA screening capacity allows, replacing MP screening with IDT screening might be considered in areas experiencing a high number of infections among donors. Although individual unit testing of the nation's blood supply is not feasible because of logistics, space, and resource constraints, IDT is being implemented in selected blood banks serving Kansas, Nebraska, North Dakota, Oklahoma, and South Dakota.

Cases of WNV illness associated with transfusions might be identified during local health department investigations of patients with reported WNV disease (*1*). History of blood donation or transfusion during the 4 weeks before illness onset is cause for investigation to identify possible transfusion-associated transmission of WNV. Other suspected cases might be identified by investigation of recipients of MP nonreactive

donations that have been tested separately and found to be viremic at levels below detection by current MP-NAT format. During 2003, to assist BCAs, federal agencies, and state health departments in assessing the residual risk for transfusion, FDA and CDC have worked with state and local health departments to conduct surveillance to detect possible transfusion-associated WNV transmission so appropriate and timely measures can be taken to maintain the safety of the nation's blood supply. Health-care providers should continue to investigate WNV illness in persons who have received blood transfusions (*3*) and report suspected cases of transfusion-associated WNV transmission to state health authorities. State health departments receiving such reports are encouraged to notify CDC through ArboNET as part of the national surveillance of human WNV infection.

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P Ericson, L Sieg, D Michels, MD, Community Blood Bank; S Rademacher, MD, Consultants In Infectious Disease, Lincoln; B Beecham, Nebraska Health and Human Svcs. J Brown, DVM, RS Lanciotti, PhD, A Lambert, A Noga, Div of Vector-Borne Infectious Diseases, CDC.

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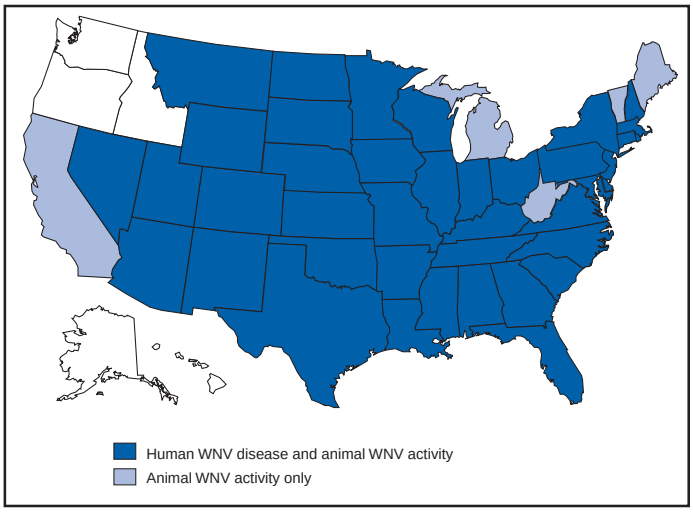
West Nile Virus Activity — United States, September 18–24, 2003

This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET as of 3 a.m., Mountain Daylight Time, September 24, 2003.

During the reporting week of September 18–24, a total of 690 human cases of WNV infection were reported from 30 states (Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota, Texas, Utah, Virginia, Wisconsin, and Wyoming), including 13 fatal cases from 10 states (Iowa, Maryland, Minnesota, Missouri, Nebraska, New Jersey, New York, North Dakota, Ohio, and South Dakota). During the same period, WNV infections were reported in 1,143 dead birds, 231 horses, and 529 mosquito pools.

During 2003, a total of 4,827 human cases of WNV infection have been reported from Colorado (n = 1,542), Nebraska (n = 788), South Dakota (n = 699), Texas (n = 311), Wyoming (n = 302), Montana (n = 187), New Mexico (n = 153), North Dakota (n = 148), Minnesota (n = 79), Pennsylvania (n = 72), Louisiana (n = 67), Iowa (n = 59), Mississippi (n = 51), Ohio (n = 39), Oklahoma (n = 38), New York (n = 37), Florida (n = 32), Kansas (n = 30), Missouri (n = 28), Alabama (n = 26), Illinois (n = 19), Maryland (n = 17), North Carolina (n = 16), Georgia (n = 12), Arkansas (n = 11), New Jersey (n = 10), Wisconsin (n = 10), Tennessee (n = seven), Connecticut (n = six), Indiana (n = six), Kentucky (n = six), Virginia (n = six), Delaware (n = four), Rhode Island (n = three), Arizona (n = one), Massachusetts (n = one), Nevada (n = one), New Hampshire (n = one), South Carolina (n = one), and Utah (n = one) (Figure). Of 4,770 (99%) cases for which demographic data were available, 2,511 (53%) occurred among males; the median age was 47 years (range: 1 month–99 years), and the dates of illness onset ranged from March 28 to September 17. Of the 4,770 cases, 93 fatal cases were reported from Colorado (n = 27), Nebraska (n = 13), South Dakota (n = eight), Texas (n = seven), Wyoming (n = seven), New York (n = five), New Mexico (n = four), Alabama (n = three), Iowa (n = three), Minnesota (n = three), Ohio (n = three), Missouri (n = two), Georgia (n = one), Kansas (n = one), Louisiana (n = one), Maryland (n = one), Mississippi (n = one), Montana (n = one), New Jersey (n = one), and North Dakota (n = one). A total of 586 presumptive West

FIGURE. Areas reporting West Nile virus (WNV) activity — United States, 2003*



* As of 3 a.m., Mountain Daylight Time, September 24, 2003.

Nile viremic blood donors have been reported to ArboNET. Of these, 477 (81%) were reported from the following eight western and midwestern states: Colorado, Kansas, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, and Wyoming. Of the 446 donors for whom complete data are reported, two subsequently developed encephalitis, and 38 subsequently had WNV fever. In addition, 8,406 dead birds with WNV infection were reported from 42 states and New York City; 2,143 WNV infections in horses have been reported from 36 states, 12 WNV infections were reported in dogs, five infections in squirrels, and 17 infections in unidentified animal species. During 2003, WNV seroconversions have been reported in 603 sentinel chicken flocks from 13 states. Of the 11 seropositive sentinel horses reported, Minnesota repored four, Illinois and South Dakota each reported three, and West Virginia reported one. A total of 4,941 WNV-positive mosquito pools have been reported from 38 states and New York City.

Additional information about WNV activity is available from CDC at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm and http://www.westnilemaps.usgs.gov.

Notice to Readers

Occupational Safety and Health in the Care and Use of Nonhuman Primates

In 1997, the National Research Council Institute for Laboratory Animal Research (NRCILAR) published the first guide for the management of an Occupational Health and Safety Program (OHSP) for the care and use of laboratory animals (*1*). This report provided a broad reference foundation for the development of an institutional OHSP. The care and use of nonhuman primates in the research setting presents challenges to facility management, including the need for guidance in risk assessment and management of specific hazards. The same year this report was published, a splash to the eye unassociated with injury resulted in the Cercopithecine herpesvirus 1 infection and subsequent death of a research assistant at a primate research center (*2,3*). Limited reviews of policies and procedures related to working with nonhuman primates conducted by CDC's National Institute for Occupational Safety and Health (NIOSH) at various National Primate Research Centers in response to this incident identified an absence of accepted industry-wide standards for management of such occupational hazards.

The Committee on Occupational Health and Safety in the Care and Use of Nonhuman Primates was appointed by NRCILAR in response to a request from the National Institutes of Health, CDC, and the Food and Drug Administration to address the risks associated with occupational exposure to nonhuman primates and to suggest ways of minimizing these risks. In June 2003, the committee published "Occupational Safety and Health in the Care and Use of Non-Human Primates." This report complements the previous publication and expands on topics particularly relevant to facilities in which nonhuman primates are housed or where nonhuman primate blood or tissues are used. The report is available at http://www.nap.edu/catalog/10713.html.

The report describes the hazards associated with work involving nonhuman primates and discusses the components of a successful OHSP, including hazard identification, risk assessment, applicable safety regulations, risk management, and personnel training. It emphasizes the importance of a strong institutional commitment to an OHSP (*4*). Topics include techniques for assessing the degree of risk for those hazards, options for managing those risks, worker training, and personal protective equipment; institutional management of workers after suspected exposures; and examples of safety and health programs in both large and small nonhuman primate facilities. The book is intended as a reference for vivarium managers, veterinarians, researchers, safety professionals, and any other persons involved in developing or implementing an OHSP in settings with nonhuman primates (*4*). It should be informative for a wide audience, including animal handlers, infectious disease physicians, public health and other researchers, and persons occupationally exposed to nonhuman primates or their biologic materials. Combined with the previous NRC publication and other guidance (*1,4,5*), these reports provide the basis for industry-wide standards for occupational health and safety in the nonhuman primate field.

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Notice to Readers

FDA Approval of Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Adsorbed, (INFANRIX®) for Fifth Consecutive DTaP Vaccine Dose

On July 8, 2003, the U.S. Food and Drug Administration (FDA) approved the use of Diphtheria and Tetanus Toxoids and Acellular Pertussis Vaccine Adsorbed (DTaP) (INFANRIX®, SmithKline Beecham Biologicals, Rixensart, Belgium) as a fifth dose for children aged 4–6 years after 4 previous doses of INFANRIX®. INFANRIX® had been previously approved for the first 4 doses in the DTaP vaccination series. Sufficient data are now available to establish the frequency of adverse events after a fifth dose of INFANRIX® at age 4–6 years in children who have received 4 previous doses of INFANRIX® (*1*).

The frequency of local injection site reactions (erythema and swelling) increases with successive doses of INFANRIX® (*1*). In two German studies, 93 and 390 children, respectively, received a fifth dose of INFANRIX® at age 4–6 years after 4 previous doses of INFANRIX®. Among solicited adverse events, swelling ≥5 cm (2 inches) in the injected limb within the 3 days after vaccination was reported in 15% and 20% of the vaccinees, respectively (*1*). Extensive swelling of the injected limb was reported spontaneously by parents of nine (9.7%) and 25 (6.4%) vaccinees, respectively, in these two studies (*1*).

The Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics, and the American Academy of Family Physicians recommend that children routinely receive a series of 5 doses of vaccine against diphtheria, tetanus, and pertussis before age 7 years. ACIP recommends that the first 4 doses be administered at ages 2, 4, 6, and 15–18 months and the fifth dose at age 4–6 years (*2–4*).

Data are limited on the safety, immunogenicity, and efficacy of using DTaP vaccines from different manufacturers for successive doses of the DTaP series. ACIP recommends that, whenever feasible, the same brand of DTaP should be used for all doses of the series but that vaccination should not be deferred because the type of DTaP used for previous doses is not available or is unknown. In such situations, any of the available licensed DTaP vaccines can be used to continue or complete the series (*3,4*).

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Notice to Readers

Immunization Registry Standards of Excellence in Support of Core Immunization Program Strategies

Progress continues to be made in achieving the national health objective for 2010 of increasing to 95% the proportion of children aged <6 years in a fully operational population-based immunization registry (*1*). Approximately 44% of children are registry participants (*2*). Much of the developmental focus of these confidential tracking systems has been on identifying and achieving minimum technical capabilities, such as ensuring data security and confidentiality, timely data access, and standardized data exchange.

In 2001, to ensure that immunization registries can support required core immunization program activity areas, CDC, the American Immunization Registry Association, and the Association of Immunization Managers formed the Programmatic Registry Operations Workgroup (PROW). Standards of excellence were written to specify how registries can support vaccine management, provider quality assurance, service delivery, consumer information, vaccine-preventable disease surveillance, and vaccination coverage assessment. In February 2003, the National Vaccine Advisory Committee endorsed these efforts. Additional information about these standards of excellence is available at http://www.immregistries.org/pdf/prowstandardscomp1.pdf.

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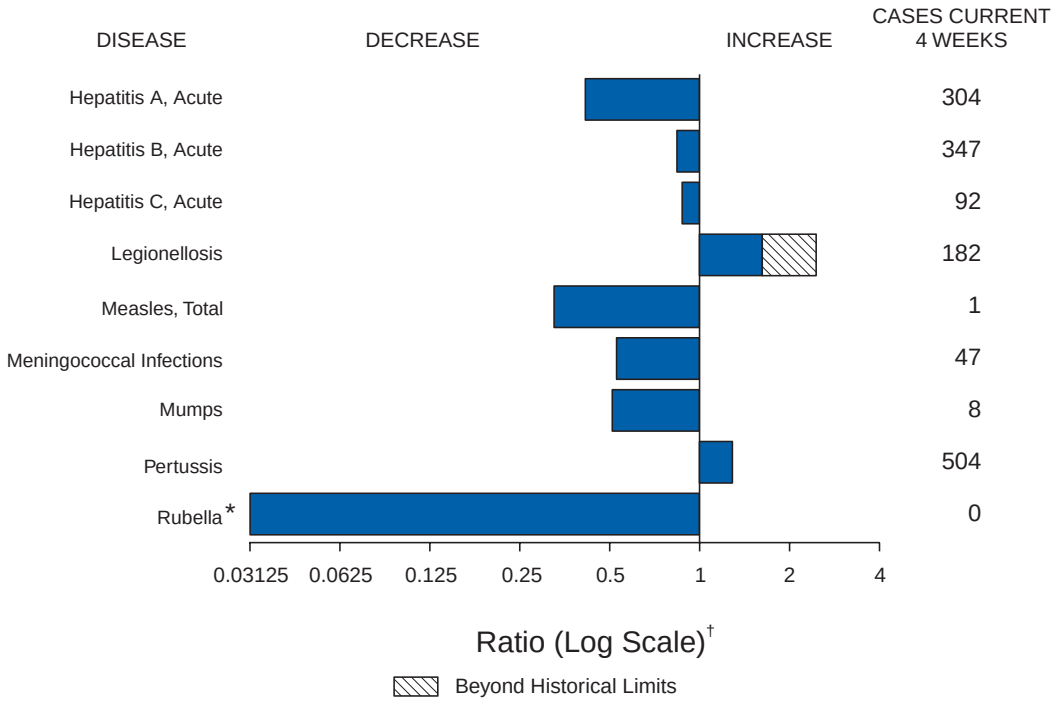
FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals September 20, 2003, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 38 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 September 20, 2003 (38th Week)*

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	2	Hansen disease (leprosy)†	42	66
Botulism:	-	-	Hantavirus pulmonary syndrome†	13	15
foodborne	9	23	Hemolytic uremic syndrome, postdiarrheal†	96	156
infant	40	51	HIV infection, pediatric†§	151	118
other (wound & unspecified)	21	12	Measles, total	37¶	26**
Brucellosis†	51	87	Mumps	140	203
Chancroid	33	54	Plague	1	-
Cholera	1	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	53	144	Psittacosis†	12	13
Diphtheria	-	1	Q fever†	51	39
Ehrlichiosis:	-	-	Rabies, human	-	2
human granulocytic (HGE)†	230	217	Rubella	7	11
human monocytic (HME)†	110	143	Rubella, congenital	-	1
other and unspecified	20	16	Streptococcal toxic-shock syndrome†	120	88
Encephalitis/Meningitis:	-	-	Tetanus	11	17
California serogroup viral†	31	85	Toxic-shock syndrome	98	80
eastern equine†	6	2	Trichinosis	1	13
Powassan†	-	1	Tularemia†	55	59
St. Louis†	4	14	Yellow fever	-	-
western equine†	98	-			

-: 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. Last update August 24, 2003.
¶ Of 37 cases reported, 29 were indigenous, and eight were imported from another country.
** Of 26 cases reported, 13 were indigenous, and 13 were imported from another country.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending September 20, 2003, and September 21, 2002 (38th 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	30,269	28,973	586,815	598,633	2,693	3,285	1,966	2,142	651	1,702
NEW ENGLAND	989	1,155	19,740	19,727	-	-	121	149	-	21
Maine	49	25	1,400	1,174	N	N	16	9	-	-
N.H.	24	25	1,023	1,142	-	-	11	24	-	-
Vt.	13	8	733	654	-	-	24	26	-	-
Mass.	408	629	8,145	7,916	-	-	47	61	-	14
R.I.	79	74	2,156	1,980	-	-	12	16	-	-
Conn.	416	394	6,283	6,861	N	N	11	13	-	7
MID. ATLANTIC	6,726	6,775	77,657	67,074	-	-	249	275	35	65
Upstate N.Y.	693	511	14,097	12,030	N	N	82	79	1	19
N.Y. City	3,390	3,943	23,410	22,297	-	-	59	109	-	25
N.J.	1,159	1,075	9,670	10,089	-	-	4	15	2	20
Pa.	1,484	1,246	30,480	22,658	N	N	104	72	32	1
E.N. CENTRAL	2,925	2,870	97,488	109,939	7	20	494	728	33	950
Ohio	555	510	24,154	27,542	-	-	87	95	33	114
Ind.	378	397	11,615	12,237	N	N	68	28	-	16
Ill.	1,348	1,358	28,753	34,991	-	2	46	94	-	531
Mich.	506	461	22,284	22,821	7	18	91	89	-	254
Wis.	138	144	10,682	12,348	-	-	202	422	-	35
W.N. CENTRAL	563	487	33,378	34,032	1	1	371	287	140	50
Minn.	110	106	7,188	7,611	N	N	106	140	27	-
Iowa	63	58	2,676	4,023	N	N	69	35	10	-
Mo.	266	224	12,648	11,456	-	-	28	27	14	22
N. Dak.	2	1	700	883	N	N	12	10	5	-
S. Dak.	9	3	1,897	1,553	-	-	31	18	27	14
Nebr.¶	39	44	3,269	3,464	1	1	11	43	24	11
Kans.	74	51	5,000	5,042	N	N	114	14	33	3
S. ATLANTIC	8,582	8,528	113,025	112,453	3	3	245	219	54	41
Del.	176	142	2,160	1,908	N	N	3	2	1	-
Md.	994	1,200	11,908	11,608	3	3	14	14	12	14
D.C.	765	396	2,053	2,382	-	-	12	4	-	-
Va.	655	604	12,129	12,653	-	-	34	10	3	-
W. Va.	61	67	1,860	1,795	N	N	4	2	-	-
N.C.	869	629	19,004	17,757	N	N	30	28	-	-
S.C.¶	551	607	11,088	10,620	-	-	3	6	1	1
Ga.	1,369	1,236	23,335	23,082	-	-	75	89	13	19
Fla.	3,142	3,647	29,488	30,648	N	N	70	64	24	7
E.S. CENTRAL	1,306	1,360	37,887	38,531	N	N	93	102	15	220
Ky.	111	198	5,934	6,385	N	N	20	4	4	24
Tenn.	575	566	14,567	11,813	N	N	32	49	5	-
Ala.	308	298	8,880	11,895	-	-	32	42	6	18
Miss.	312	298	8,506	8,438	N	N	9	7	-	178
W.S. CENTRAL	3,128	3,307	72,283	79,826	-	10	44	50	141	354
Ark.	127	190	5,546	5,513	-	-	11	7	11	8
La.	414	808	12,379	14,335	N	N	2	9	2	189
Okla.	154	154	6,828	8,330	N	N	10	11	12	-
Tex.	2,433	2,155	47,530	51,648	-	10	21	23	116	157
MOUNTAIN	1,152	955	33,522	36,973	1,867	2,102	102	122	233	1
Mont.	11	8	1,305	1,567	N	N	17	4	200	-
Idaho	17	24	1,777	1,822	N	N	20	21	-	1
Wyo.	6	7	718	670	1	-	3	9	30	-
Colo.	296	211	7,964	10,210	N	N	26	44	-	-
N. Mex.	92	59	5,052	5,492	5	7	8	18	2	-
Ariz.	490	370	9,658	10,798	1,826	2,055	5	11	-	-
Utah	47	49	3,061	2,064	9	10	16	11	1	-
Nev.	193	227	3,987	4,350	26	30	7	4	-	-
PACIFIC	4,898	3,536	101,835	100,078	814	1,148	247	210	-	-
Wash.	311	336	11,779	10,640	N	N	25	22	-	-
Oreg.	184	234	4,415	4,933	-	-	32	29	-	-
Calif.	4,319	2,857	80,438	78,610	814	1,148	190	157	-	-
Alaska	13	22	2,638	2,662	-	-	-	-	-	-
Hawaii	71	87	2,565	3,233	-	-	-	2	-	-
Guam	6	1	-	465	-	-	-	-	-	-
P.R.	787	798	1,390	1,877	N	N	N	N	-	-
V.I.	25	63	142	125	-	-	-	-	-	-
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 August 31, 2003.

¶ Contains data reported through National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 20, 2003, and September 21, 2002 (38th 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	1,583	2,599	161	142	98	32	12,107	14,460	223,004	255,229
NEW ENGLAND	103	195	27	38	12	4	865	1,307	5,089	5,548
Maine	8	24	-	6	-	-	123	141	142	96
N.H.	11	25	2	-	-	-	21	33	76	92
Vt.	13	8	-	1	-	-	88	96	59	77
Mass.	41	93	3	16	12	4	384	711	2,112	2,403
R.I.	1	8	-	1	-	-	82	115	695	630
Conn.	29	37	22	14	-	-	167	211	2,005	2,250
MID. ATLANTIC	171	276	11	1	24	6	2,378	2,946	29,973	30,692
Upstate N.Y.	70	120	7	-	11	-	700	834	5,551	6,228
N.Y. City	4	13	-	-	-	-	772	1,085	9,227	9,262
N.J.	13	47	-	-	-	1	241	343	5,744	5,553
Pa.	84	96	4	1	13	5	665	684	9,451	9,649
E.N. CENTRAL	359	652	18	26	16	3	1,965	2,485	43,908	53,416
Ohio	74	110	13	9	15	2	631	636	13,077	15,563
Ind.	65	47	-	-	-	-	-	-	4,514	5,246
Ill.	65	154	-	6	-	-	504	710	13,021	17,665
Mich.	58	104	-	3	-	1	505	643	9,686	10,501
Wis.	97	237	5	8	1	-	325	496	3,610	4,441
W.N. CENTRAL	278	367	28	26	21	3	1,365	1,432	11,801	13,138
Minn.	99	127	15	22	1	-	525	552	1,977	2,286
Iowa	60	90	-	-	-	-	196	221	607	922
Mo.	59	48	8	-	1	-	349	342	6,083	6,498
N. Dak.	8	4	-	-	9	-	24	14	30	52
S. Dak.	20	33	4	1	-	-	54	51	164	189
Nebr.	14	43	1	3	-	-	87	122	1,083	1,131
Kans.	18	22	-	-	10	3	130	130	1,857	2,060
S. ATLANTIC	107	203	51	26	7	-	1,917	2,125	56,113	64,868
Del.	4	5	N	N	N	N	32	40	847	1,155
Md.	7	22	-	-	-	-	76	89	5,700	6,522
D.C.	1	-	-	-	-	-	37	30	1,648	1,916
Va.	30	48	8	6	-	-	244	204	5,628	7,603
W. Va.	3	6	-	-	-	-	28	44	638	713
N.C.	4	33	17	-	-	-	N	N	10,977	11,637
S.C.	-	5	-	-	-	-	82	97	6,008	6,806
Ga.	23	38	3	7	-	-	658	679	11,657	12,692
Fla.	35	46	23	13	7	-	760	942	13,010	15,824
E.S. CENTRAL	58	83	2	-	6	9	237	271	18,492	22,259
Ky.	20	22	2	-	6	9	N	N	2,627	2,702
Tenn.	23	36	-	-	-	-	117	119	6,025	6,868
Ala.	12	17	-	-	-	-	120	152	5,554	7,676
Miss.	3	8	-	-	-	-	-	-	4,286	5,013
W.S. CENTRAL	62	91	1	-	7	3	209	174	29,787	35,888
Ark.	8	9	-	-	-	-	108	119	2,877	3,463
La.	3	4	-	-	-	-	5	4	7,444	8,885
Okla.	21	16	-	-	-	-	96	49	2,691	3,539
Tex.	30	62	1	-	7	3	-	2	16,775	20,001
MOUNTAIN	205	253	20	19	5	4	1,110	1,142	7,153	7,984
Mont.	12	23	-	-	-	-	77	72	72	68
Idaho	46	35	14	10	-	-	137	86	55	64
Wyo.	2	11	-	2	-	-	16	22	33	44
Colo.	53	76	3	4	5	4	310	380	1,824	2,515
N. Mex.	6	5	3	3	-	-	35	118	819	1,092
Ariz.	25	28	N	N	N	N	200	144	2,662	2,639
Utah	43	53	-	-	-	-	249	216	304	198
Nev.	18	22	-	-	-	-	86	104	1,384	1,364
PACIFIC	240	479	3	6	-	-	2,061	2,578	20,688	21,436
Wash.	67	109	1	-	-	-	207	303	1,948	2,118
Oreg.	68	167	2	6	-	-	290	316	595	612
Calif.	97	165	-	-	-	-	1,445	1,817	17,165	17,779
Alaska	2	6	-	-	-	-	56	73	382	434
Hawaii	6	32	-	-	-	-	63	69	598	493
Guam	N	N	-	-	-	-	-	7	-	37
P.R.	-	1	-	-	-	-	35	58	151	273
V.I.	-	-	-	-	-	-	-	-	36	31
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 September 20, 2003, and September 21, 2002 (38th 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	1,259	1,247	13	25	70	100	133	114	4,232	6,732
NEW ENGLAND	99	85	1	-	6	8	5	2	218	238
Maine	4	1	-	-	-	-	1	-	9	7
N.H.	11	7	1	-	-	-	-	-	11	11
Vt.	7	6	-	-	-	-	-	-	6	1
Mass.	47	40	-	-	6	4	3	2	124	108
R.I.	5	10	-	-	-	-	1	-	11	30
Conn.	25	21	-	-	-	4	-	-	57	81
MID. ATLANTIC	289	229	-	2	1	13	37	20	875	849
Upstate N.Y.	108	90	-	2	1	4	11	6	94	132
N.Y. City	44	54	-	-	-	-	9	9	319	328
N.J.	52	45	-	-	-	-	6	5	103	142
Pa.	85	40	-	-	-	9	11	-	359	247
E.N. CENTRAL	182	245	3	3	7	9	28	32	460	834
Ohio	58	62	-	-	-	1	10	7	83	231
Ind.	36	35	-	1	4	7	-	-	52	37
Ill.	58	95	-	-	-	-	14	17	141	225
Mich.	19	11	3	2	3	1	1	-	146	176
Wis.	11	42	-	-	-	-	3	8	38	165
W.N. CENTRAL	89	54	-	1	6	2	11	3	142	239
Minn.	34	34	-	1	6	2	2	1	37	36
Iowa	-	1	-	-	-	-	-	-	23	53
Mo.	35	11	-	-	-	-	9	2	50	72
N. Dak.	1	4	-	-	-	-	-	-	-	1
S. Dak.	1	1	-	-	-	-	-	-	-	3
Nebr.	2	-	-	-	-	-	-	-	8	16
Kans.	16	3	-	-	-	-	-	-	24	58
S. ATLANTIC	290	284	1	5	12	15	14	21	1,003	1,863
Del.	-	-	-	-	-	-	-	-	4	11
Md.	64	71	-	2	5	3	-	1	109	237
D.C.	-	-	-	-	-	-	-	-	30	65
Va.	40	25	-	-	-	-	5	4	64	90
W. Va.	14	16	-	-	-	1	-	1	13	15
N.C.	33	30	-	-	3	3	1	-	71	179
S.C.	3	10	-	-	-	-	-	2	26	51
Ga.	51	60	-	-	-	-	5	10	368	365
Fla.	85	72	1	3	4	8	3	3	318	850
E.S. CENTRAL	55	54	1	1	-	4	7	10	124	200
Ky.	4	4	-	-	-	1	-	-	24	40
Tenn.	31	27	-	-	-	-	4	7	73	81
Ala.	18	14	1	1	-	3	2	1	13	31
Miss.	2	9	-	-	-	-	1	2	14	48
W.S. CENTRAL	51	43	1	2	7	7	3	2	188	786
Ark.	6	1	-	-	1	-	-	-	17	43
La.	7	6	-	-	-	-	2	2	38	64
Okla.	35	34	-	-	6	7	1	-	9	38
Tex.	3	2	1	2	-	-	-	-	124	641
MOUNTAIN	127	139	4	4	17	25	18	13	356	429
Mont.	-	-	-	-	-	-	-	-	7	12
Idaho	4	2	-	-	-	-	1	1	-	24
Wyo.	1	2	-	-	-	-	-	-	1	2
Colo.	25	26	-	-	-	-	5	2	54	66
N. Mex.	14	22	-	-	4	6	1	1	15	18
Ariz.	64	62	4	2	6	14	8	6	208	232
Utah	11	14	-	1	4	3	3	-	31	38
Nev.	8	11	-	1	3	2	-	3	40	37
PACIFIC	77	114	2	7	14	17	10	11	866	1,294
Wash.	9	2	-	1	6	1	2	-	41	132
Oreg.	37	44	-	-	-	-	3	3	46	49
Calif.	17	38	2	6	8	16	4	4	764	1,082
Alaska	-	1	-	-	-	-	-	1	8	8
Hawaii	14	29	-	-	-	-	1	3	7	23
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	1	-	-	-	-	-	-	26	172
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).

† Non-serotype b: nontypeable and type other than b; Unknown serotype: type unknown or not reported. Previously, cases reported without type information were counted as non-serotype b.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 20, 2003, and September 21, 2002 (38th 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	4,398	5,283	1,114	1,385	1,346	789	417	427	12,034	14,469
NEW ENGLAND	176	209	2	18	53	71	34	42	2,096	3,886
Maine	1	8	-	-	2	2	6	4	161	49
N.H.	11	15	-	-	6	4	3	4	87	185
Vt.	2	4	2	12	5	29	-	2	32	29
Mass.	146	116	-	6	21	27	13	21	448	1,649
R.I.	8	21	-	-	3	1	-	1	402	226
Conn.	8	45	U	U	16	8	12	10	966	1,748
MID. ATLANTIC	707	1,122	124	75	373	220	80	128	8,115	7,945
Upstate N.Y.	86	87	37	32	111	58	22	37	3,356	3,486
N.Y. City	252	556	-	-	29	48	12	31	5	56
N.J.	165	227	-	4	34	25	11	26	1,372	1,968
Pa.	204	252	87	39	199	89	35	34	3,382	2,435
E.N. CENTRAL	282	472	126	79	269	197	51	57	557	1,109
Ohio	100	68	8	-	171	67	18	15	54	45
Ind.	28	31	7	-	20	14	5	6	17	17
Ill.	1	98	14	17	3	21	6	13	-	46
Mich.	130	233	97	59	62	64	17	15	7	24
Wis.	23	42	-	3	13	31	5	8	479	977
W.N. CENTRAL	234	161	175	595	51	41	15	11	258	192
Minn.	28	20	7	2	3	9	8	1	190	112
Iowa	7	13	1	1	9	9	-	1	27	31
Mo.	164	83	166	581	24	11	4	6	31	36
N. Dak.	2	4	-	-	1	-	-	1	-	-
S. Dak.	2	1	-	1	2	2	-	-	-	1
Nebr.	18	22	1	10	4	10	3	1	2	6
Kans.	13	18	-	-	8	-	-	1	8	6
S. ATLANTIC	1,363	1,252	124	151	378	136	89	56	837	1,064
Del.	5	13	-	-	20	7	N	N	137	151
Md.	95	95	13	8	93	26	14	12	487	609
D.C.	9	15	-	-	12	5	-	-	6	17
Va.	134	151	7	7	71	17	9	4	62	112
W. Va.	20	18	1	2	13	-	5	-	17	12
N.C.	111	174	10	22	28	8	15	5	66	98
S.C.	110	81	24	4	5	6	2	8	3	12
Ga.	404	321	3	60	20	12	22	9	12	1
Fla.	475	384	66	48	116	55	22	18	47	52
E.S. CENTRAL	296	275	63	102	77	26	23	10	42	52
Ky.	49	46	9	4	33	10	5	2	10	18
Tenn.	144	103	18	22	28	10	6	5	12	17
Ala.	45	55	6	6	13	6	10	3	5	8
Miss.	58	71	30	70	3	-	2	-	15	9
W.S. CENTRAL	222	732	381	232	36	24	19	25	34	119
Ark.	38	93	3	10	2	-	1	-	-	2
La.	46	98	46	76	-	4	1	2	3	3
Okla.	31	43	2	4	6	3	2	7	-	-
Tex.	107	498	330	142	28	17	15	16	31	114
MOUNTAIN	469	460	38	45	49	30	28	25	15	13
Mont.	13	7	1	-	3	3	2	-	-	-
Idaho	-	6	-	-	3	1	2	2	3	3
Wyo.	27	15	-	5	2	2	-	-	1	1
Colo.	62	58	10	6	11	5	10	6	4	1
N. Mex.	26	132	-	2	2	2	2	2	-	1
Ariz.	233	167	7	4	9	7	9	11	1	2
Utah	49	30	-	4	14	7	-	3	3	4
Nev.	59	45	20	24	5	3	3	1	3	1
PACIFIC	649	600	81	88	60	44	78	73	80	89
Wash.	48	55	13	17	8	3	3	8	2	9
Oreg.	84	100	11	10	N	N	4	8	16	11
Calif.	489	433	54	60	52	41	67	49	59	66
Alaska	8	6	1	-	-	-	-	-	3	3
Hawaii	20	6	2	1	-	-	4	8	N	N
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	41	143	-	-	-	-	-	2	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 September 20, 2003, and September 21, 2002 (38th 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	730	1,056	1,189	1,378	4,948	5,872	4,200	5,696	538	759
NEW ENGLAND	28	59	54	78	501	524	417	683	-	6
Maine	3	4	5	4	12	8	47	45	-	-
N.H.	2	6	3	11	57	11	13	34	-	-
Vt.	1	2	1	4	55	100	28	82	-	-
Mass.	6	25	34	41	362	368	155	215	-	3
R.I.	1	4	2	5	14	11	46	58	-	3
Conn.	15	18	9	13	1	26	128	249	-	-
MID. ATLANTIC	177	284	141	171	507	297	666	928	30	47
Upstate N.Y.	43	32	36	38	286	205	303	525	2	-
N.Y. City	83	184	27	32	-	13	5	10	10	9
N.J.	25	37	19	26	39	-	62	133	10	16
Pa.	26	31	59	75	182	79	296	260	8	22
E.N. CENTRAL	68	138	174	197	422	682	124	138	11	26
Ohio	14	15	47	62	189	316	44	29	8	10
Ind.	2	12	38	24	45	91	18	30	1	3
Ill.	21	58	38	44	-	110	16	28	-	11
Mich.	23	42	34	32	80	41	39	37	2	2
Wis.	8	11	17	35	108	124	7	14	-	-
W.N. CENTRAL	40	52	111	116	280	510	466	378	53	99
Minn.	21	16	21	29	107	237	27	33	1	-
Iowa	5	4	18	17	68	108	93	62	2	3
Mo.	4	14	54	39	63	103	38	41	42	91
N. Dak.	1	1	1	-	4	5	45	32	-	-
S. Dak.	2	1	1	2	3	6	67	74	4	1
Nebr.	-	5	7	22	5	7	58	-	2	4
Kans.	7	11	9	7	30	44	138	136	2	-
S. ATLANTIC	224	245	221	224	440	334	1,922	2,006	327	351
Del.	3	2	7	6	1	2	43	24	1	1
Md.	53	85	24	7	55	53	245	301	84	33
D.C.	8	17	-	-	-	1	-	-	-	-
Va.	26	21	20	34	76	117	404	445	23	27
W. Va.	4	3	4	4	6	30	69	144	5	1
N.C.	19	19	30	29	90	29	587	539	160	218
S.C.	3	6	20	22	90	34	172	101	14	45
Ga.	45	40	28	25	30	24	286	315	32	19
Fla.	63	52	88	97	92	44	116	137	8	7
E.S. CENTRAL	12	17	61	76	116	180	136	189	67	99
Ky.	5	6	14	12	38	78	29	20	1	5
Tenn.	4	3	16	30	57	66	86	108	48	59
Ala.	3	3	15	18	15	28	21	57	10	11
Miss.	-	5	16	16	6	8	-	4	8	24
W.S. CENTRAL	19	59	118	170	422	1,358	177	898	41	115
Ark.	4	1	12	22	30	468	25	3	-	42
La.	3	4	25	34	6	7	-	-	-	-
Okla.	4	7	13	17	12	35	152	90	40	61
Tex.	8	47	68	97	374	848	-	805	1	12
MOUNTAIN	35	38	59	77	735	721	139	236	9	13
Mont.	-	1	3	2	4	5	20	16	1	1
Idaho	1	-	6	3	62	55	14	30	2	-
Wyo.	1	-	2	-	123	10	4	16	2	4
Colo.	15	21	18	23	252	280	34	35	2	2
N. Mex.	1	2	7	4	50	156	5	10	-	1
Ariz.	12	6	15	23	126	109	49	116	1	-
Utah	4	5	1	4	94	62	10	9	1	-
Nev.	1	3	7	18	24	44	3	4	-	5
PACIFIC	127	164	250	269	1,525	1,266	153	240	-	3
Wash.	20	16	25	51	449	351	-	-	-	-
Oreg.	10	8	42	38	360	161	6	14	-	2
Calif.	91	132	171	171	705	723	140	200	-	1
Alaska	-	2	3	3	-	4	7	26	-	-
Hawaii	6	6	9	6	11	27	-	-	-	-
Guam	-	-	-	1	-	2	-	-	-	-
P.R.	1	1	2	6	-	2	59	63	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 September 20, 2003, and September 21, 2002 (38th Week)*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive			
							Drug resistant, all ages		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	26,922	29,856	15,268	13,637	4,145	3,612	1,604	1,837	325	242
NEW ENGLAND	1,524	1,622	223	248	333	274	40	88	6	2
Maine	99	105	6	4	22	20	-	-	-	-
N.H.	94	99	5	8	21	31	-	-	N	N
Vt.	50	62	6	1	18	9	6	4	3	1
Mass.	900	920	150	160	159	94	N	N	N	N
R.I.	89	121	11	12	11	14	10	11	3	1
Conn.	292	315	45	63	102	106	24	73	U	U
MID. ATLANTIC	3,108	4,046	1,630	1,230	755	580	98	88	75	60
Upstate N.Y.	809	1,083	306	205	302	232	54	75	58	49
N.Y. City	818	1,032	271	348	101	133	U	U	U	U
N.J.	358	797	206	452	130	124	N	N	N	N
Pa.	1,123	1,134	847	225	222	91	44	13	17	11
E.N. CENTRAL	3,954	4,179	1,288	1,544	895	771	333	166	133	91
Ohio	1,061	971	252	458	254	170	219	33	77	4
Ind.	445	399	120	78	94	41	114	131	34	44
Ill.	1,248	1,424	621	744	181	223	-	2	-	-
Mich.	599	671	196	125	304	244	N	N	N	N
Wis.	601	714	99	139	62	93	N	N	22	43
W.N. CENTRAL	1,812	1,818	586	787	267	199	128	333	44	41
Minn.	393	418	73	161	135	100	-	220	38	37
Iowa	270	300	52	99	N	N	N	N	N	N
Mo.	723	614	291	121	56	39	9	5	2	1
N. Dak.	28	24	3	16	11	-	3	1	4	3
S. Dak.	82	83	13	151	19	12	1	1	-	-
Nebr.	107	130	90	169	21	18	-	25	N	N
Kans.	209	249	64	70	25	30	115	81	N	N
S. ATLANTIC	7,209	7,434	5,549	4,299	734	592	842	854	16	25
Del.	61	65	147	122	6	2	1	3	N	N
Md.	614	702	490	836	218	92	-	-	-	19
D.C.	35	54	58	45	12	6	2	-	6	3
Va.	765	795	312	695	90	64	N	N	N	N
W. Va.	96	98	-	9	31	16	57	36	10	3
N.C.	893	999	788	258	91	107	N	N	U	U
S.C.	472	521	305	85	32	31	117	149	N	N
Ga.	1,348	1,385	1,344	970	89	113	197	214	N	N
Fla.	2,925	2,815	2,105	1,279	165	161	468	452	N	N
E.S. CENTRAL	1,785	2,182	644	987	162	84	107	114	-	-
Ky.	308	245	80	102	37	17	14	13	N	N
Tenn.	544	549	239	66	125	67	93	101	N	N
Ala.	364	565	190	522	-	-	-	-	N	N
Miss.	569	823	135	297	-	-	-	-	-	-
W.S. CENTRAL	2,430	3,196	2,802	2,110	168	240	33	154	47	19
Ark.	541	683	77	151	5	6	8	6	-	-
La.	258	565	144	347	1	1	25	148	10	6
Okla.	334	368	625	369	66	37	N	N	27	2
Tex.	1,297	1,580	1,956	1,243	96	196	N	N	10	11
MOUNTAIN	1,598	1,615	832	561	367	428	20	40	4	4
Mont.	78	74	2	3	2	-	-	-	-	-
Idaho	135	104	24	7	18	7	N	N	N	N
Wyo.	68	50	5	7	2	7	4	10	-	-
Colo.	371	458	197	131	110	90	-	-	-	-
N. Mex.	163	221	147	114	89	83	16	30	-	-
Ariz.	500	422	373	237	135	213	-	-	N	N
Utah	165	126	38	21	9	28	-	-	4	4
Nev.	118	160	46	41	2	-	-	-	-	-
PACIFIC	3,502	3,764	1,714	1,871	464	444	3	-	-	-
Wash.	371	358	114	113	38	46	-	-	N	N
Oreg.	301	267	184	75	N	N	N	N	N	N
Calif.	2,622	2,890	1,373	1,634	340	343	N	N	N	N
Alaska	54	46	7	3	-	-	-	-	N	N
Hawaii	154	203	36	46	86	55	3	-	-	-
Guam	-	37	-	26	-	-	-	4	-	-
P.R.	169	373	3	27	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 September 20, 2003, and September 21, 2002 (38th Week)*

Reporting area	Syphilis				Tuberculosis		Typhoid fever		Varicella (Chickenpox)
	Primary & secondary		Congenital						
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003
UNITED STATES	4,816	4,786	254	299	7,784	9,205	206	232	8,730
NEW ENGLAND	148	102	1	-	220	285	21	11	1,285
Maine	6	2	1	-	5	10	-	-	640
N.H.	13	2	-	-	7	9	2	-	-
Vt.	-	1	-	-	3	4	-	-	510
Mass.	100	70	-	-	144	149	11	7	132
R.I.	15	6	-	-	28	40	2	-	3
Conn.	14	21	-	-	33	73	6	4	-
MID. ATLANTIC	600	506	49	47	1,515	1,589	31	60	25
Upstate N.Y.	32	23	16	1	197	228	7	6	N
N.Y. City	332	301	25	20	823	762	12	31	-
N.J.	115	103	8	25	294	363	9	16	-
Pa.	121	79	-	1	201	236	3	7	25
E.N. CENTRAL	645	896	49	44	813	924	14	25	3,891
Ohio	160	112	2	2	150	146	2	6	942
Ind.	34	46	7	2	94	81	3	2	-
Ill.	246	348	15	33	389	450	1	10	-
Mich.	194	371	25	7	144	194	8	3	2,354
Wis.	11	19	-	-	36	53	-	4	595
W.N. CENTRAL	99	91	3	1	333	392	3	9	39
Minn.	34	42	-	1	138	164	-	3	N
Iowa	4	2	-	-	17	24	1	-	N
Mo.	35	25	3	-	81	105	1	2	-
N. Dak.	-	-	-	-	-	4	-	-	39
S. Dak.	1	-	-	-	16	10	-	-	-
Nebr.	4	5	-	-	10	20	1	4	-
Kans.	21	17	-	-	71	65	-	-	-
S. ATLANTIC	1,274	1,198	47	69	1,554	1,910	38	29	1,610
Del.	4	9	-	-	-	13	-	-	20
Md.	216	139	8	13	155	212	7	7	-
D.C.	37	40	-	1	-	-	1	-	22
Va.	59	52	1	1	183	198	11	3	436
W. Va.	2	2	-	-	12	26	-	-	953
N.C.	118	212	16	17	221	234	6	1	N
S.C.	79	91	4	9	120	128	-	-	179
Ga.	305	265	5	13	250	383	7	5	-
Fla.	454	388	13	15	613	716	6	13	N
E.S. CENTRAL	222	357	12	20	462	560	5	4	-
Ky.	29	66	1	3	86	99	-	4	N
Tenn.	95	133	5	6	155	220	2	-	N
Ala.	81	124	4	7	154	150	3	-	-
Miss.	17	34	2	4	67	91	-	-	-
W.S. CENTRAL	654	612	44	66	1,075	1,396	16	24	1,463
Ark.	41	24	-	6	67	94	-	-	-
La.	96	112	-	-	-	-	-	-	4
Okla.	34	49	1	2	90	118	-	-	N
Tex.	483	427	43	58	918	1,184	16	24	1,459
MOUNTAIN	206	229	21	11	290	287	3	9	417
Mont.	-	-	-	-	5	6	-	-	N
Idaho	5	1	-	-	5	11	-	-	N
Wyo.	-	-	-	-	3	2	-	-	43
Colo.	14	50	3	2	62	59	3	4	-
N. Mex.	38	25	-	-	6	27	-	1	-
Ariz.	136	140	18	9	158	149	-	-	4
Utah	4	4	-	-	29	20	-	2	370
Nev.	9	9	-	-	22	13	-	2	-
PACIFIC	968	795	28	41	1,522	1,862	75	61	-
Wash.	56	41	-	1	181	176	3	4	-
Oreg.	27	11	-	-	83	82	4	2	-
Calif.	883	736	28	39	1,169	1,454	67	52	-
Alaska	-	-	-	-	43	38	-	-	-
Hawaii	2	7	-	1	46	112	1	3	-
Guam	-	6	-	-	-	52	-	-	-
P.R.	152	185	1	21	33	75	-	-	278
V.I.	1	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 September 20, 2003 (38th Week)

Reporting Area	All causes, by age (years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	492	344	92	34	10	12	60
Boston, Mass.	149	95	30	14	3	7	19
Bridgeport, Conn.	33	22	6	3	2	-	1
Cambridge, Mass.	13	10	1	2	-	-	2
Fall River, Mass.	16	15	1	-	-	-	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	26	20	4	2	-	-	4
Lynn, Mass.	9	5	4	-	-	-	1
New Bedford, Mass.	21	14	4	2	-	1	1
New Haven, Conn.	42	30	7	2	1	2	2
Providence, R.I.	77	54	13	6	2	2	12
Somerville, Mass.	2	1	1	-	-	-	1
Springfield, Mass.	35	25	7	2	1	-	5
Waterbury, Conn.	14	12	2	-	-	-	3
Worcester, Mass.	55	41	12	1	1	-	8
MID. ATLANTIC	2,012	1,364	437	132	37	39	94
Albany, N.Y.	46	32	10	1	1	2	2
Allentown, Pa.	19	16	1	2	-	-	1
Buffalo, N.Y.	79	53	21	1	1	3	5
Camden, N.J.	24	18	5	-	-	-	-
Elizabeth, N.J.	21	15	5	1	-	-	1
Erie, Pa.	35	28	5	2	-	-	-
Jersey City, N.J.	25	16	7	-	-	2	-
New York City, N.Y.	1,013	668	232	77	19	15	43
Newark, N.J.	49	18	19	8	1	3	3
Paterson, N.J.	19	11	7	1	-	-	-
Philadelphia, Pa.	273	180	54	23	7	9	4
Pittsburgh, Pa.§	24	20	4	-	-	-	1
Reading, Pa.	19	15	2	-	1	1	2
Rochester, N.Y.	146	105	29	6	3	3	13
Schenectady, N.Y.	15	10	4	-	1	-	2
Scranton, Pa.	32	24	4	2	2	-	-
Syracuse, N.Y.	106	92	11	2	-	1	15
Trenton, N.J.	31	17	11	3	-	-	-
Utica, N.Y.	12	8	3	-	1	-	1
Yonkers, N.Y.	24	18	3	3	-	-	1
E.N. CENTRAL	1,932	1,273	396	132	42	60	119
Akron, Ohio	48	31	11	3	1	2	4
Canton, Ohio	37	26	7	3	1	-	3
Chicago, Ill.	368	218	91	31	8	19	21
Cincinnati, Ohio	82	50	19	4	2	7	5
Cleveland, Ohio	146	78	46	10	4	8	10
Columbus, Ohio	189	124	37	19	1	8	12
Dayton, Ohio	100	83	13	2	1	1	4
Detroit, Mich.	140	76	42	16	6	-	10
Evansville, Ind.	44	32	6	6	-	-	1
Fort Wayne, Ind.	60	46	9	1	2	2	2
Gary, Ind.	25	14	5	3	3	-	1
Grand Rapids, Mich.	58	37	11	5	-	5	7
Indianapolis, Ind.	166	104	44	10	6	2	9
Lansing, Mich.	44	35	7	-	-	2	5
Milwaukee, Wis.	125	82	9	1	2	3	7
Peoria, Ill.	52	35	11	3	3	-	3
Rockford, Ill.	52	44	5	3	-	-	7
South Bend, Ind.	48	38	6	3	1	-	3
Toledo, Ohio	101	84	10	6	1	-	3
Youngstown, Ohio	47	36	7	3	-	1	2
W.N. CENTRAL	460	300	109	28	14	9	30
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	33	26	4	2	1	-	-
Kansas City, Kans.	33	19	11	2	1	-	4
Kansas City, Mo.	109	66	27	10	2	4	9
Lincoln, Nebr.	35	27	6	1	-	1	3
Minneapolis, Minn.	51	31	12	5	3	-	3
Omaha, Nebr.	79	50	21	2	4	2	4
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	60	40	14	3	2	1	4
Wichita, Kans.	60	41	14	3	1	1	3
S. ATLANTIC	1,151	707	260	122	36	23	59
Atlanta, Ga.	153	93	31	18	9	2	4
Baltimore, Md.	198	115	54	20	6	3	20
Charlotte, N.C.	111	76	22	9	-	4	6
Jacksonville, Fla.	89	51	24	9	4	1	1
Miami, Fla.	95	55	23	15	-	1	4
Norfolk, Va.	31	21	6	4	-	-	-
Richmond, Va.	35	16	8	7	2	2	-
Savannah, Ga.	76	55	17	3	-	1	5
St. Petersburg, Fla.	47	31	8	6	1	1	1
Tampa, Fla.	199	128	46	15	7	3	14
Washington, D.C.	102	57	18	14	7	4	1
Wilmington, Del.	15	9	3	2	-	1	3
E.S. CENTRAL	862	578	190	55	23	15	48
Birmingham, Ala.	180	121	49	5	2	2	13
Chattanooga, Tenn.	84	60	17	4	1	2	5
Knoxville, Tenn.	97	63	18	9	5	2	-
Lexington, Ky.	83	52	19	8	2	2	4
Memphis, Tenn.	145	107	28	7	2	1	7
Mobile, Ala.	87	65	14	4	3	1	2
Montgomery, Ala.	35	25	6	3	1	-	7
Nashville, Tenn.	151	85	39	15	7	5	10
W.S. CENTRAL	1,443	850	327	149	69	47	98
Austin, Tex.	76	50	11	10	2	3	4
Baton Rouge, La.	6	2	3	-	1	-	-
Corpus Christi, Tex.	53	30	12	8	1	2	4
Dallas, Tex.	165	92	35	23	8	7	12
El Paso, Tex.	96	68	20	4	4	-	5
Ft. Worth, Tex.	131	70	35	11	7	8	4
Houston, Tex.	376	195	87	51	28	15	19
Little Rock, Ark.	80	37	20	10	6	7	4
New Orleans, La.	44	28	9	5	-	2	-
San Antonio, Tex.	239	162	51	17	7	2	25
Shreveport, La.	88	64	16	4	2	1	13
Tulsa, Okla.	89	52	28	6	3	-	8
MOUNTAIN	972	568	188	74	31	24	52
Albuquerque, N.M.	103	68	24	8	2	1	5
Boise, Idaho	44	26	13	2	-	3	5
Colo. Springs, Colo.	66	43	16	3	3	1	2
Denver, Colo.	105	65	23	8	3	6	3
Las Vegas, Nev.	226	145	49	22	5	5	10
Ogden, Utah	28	16	9	-	3	-	-
Phoenix, Ariz.	103	7	2	6	1	-	7
Pueblo, Colo.	30	25	2	1	1	1	2
Salt Lake City, Utah	126	83	24	7	6	6	8
Tucson, Ariz.	141	90	26	17	7	1	10
PACIFIC	1,350	921	291	86	30	21	89
Berkeley, Calif.	14	10	4	-	-	-	1
Fresno, Calif.	155	95	40	12	6	1	9
Glendale, Calif.	15	9	5	-	-	1	2
Honolulu, Hawaii	75	56	13	3	-	3	7
Long Beach, Calif.	73	43	22	6	1	1	7
Los Angeles, Calif.	304	216	60	20	6	2	16
Pasadena, Calif.	32	20	10	2	-	-	4
Portland, Oreg.	73	48	17	6	2	-	2
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	147	107	29	5	3	3	13
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	154	113	28	7	4	2	16
Santa Cruz, Calif.	26	22	2	-	1	1	2
Seattle, Wash.	135	82	30	13	5	5	2
Spokane, Wash.	47	29	11	6	1	-	4
Tacoma, Wash.	100	71	20	6	1	2	4
TOTAL	10,674¶	6,905	2,290	812	292	250	649

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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