Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report

Weekly / Vol. 60 / No. 13

April 8, 2011

Measles Imported by Returning U.S. Travelers Aged 6–23 Months, 2001–2011

In the first 2 months of 2011, CDC received reports of seven imported measles cases among returning U.S. travelers aged 6–23 months; four required hospitalization. Young children are at greater risk for severe measles, death, or sequelae such as subacute sclerosing panencephalitis (*1,2*). Although all seven children had been eligible for vaccination before travel, none had received measles, mumps, and rubella (MMR) vaccine, the only measles-containing vaccine currently available in the United States. To characterize imported measles cases reported in the first 2 months of 2011 in U.S. travelers aged 6–23 months and compare them with cases in recent years, CDC analyzed data from the National Notifiable Diseases Surveillance System (NNDSS) for the period January 2001–February 2011. The results of that analysis indicated that, during January–February 2011, a total of 13 imported cases were reported in U.S. residents, including the seven children aged 6–23 months. During 2001–2010, a total of 159 imported cases were reported in U.S. residents, including 47 (range: 3–8 per year) in children aged 6–23 months (three of whom had been vaccinated before travel). Because measles remains endemic in much of the world, international travelers should be up-to-date on vaccinations. In accordance with the Advisory Committee for Immunization Practices (ACIP) recommendations, U.S. children who travel or live abroad should be vaccinated at an earlier age than those living in the United States because of the greater risk for exposure to measles outside the United States, and particularly outside the Americas (*3*).

In the United States, measles cases are reported to CDC by local and state health departments via NNDSS, using standard case definitions (*4*). Cases are classified epidemiologically according to the source of infection. An internationally imported measles case is defined as one resulting from exposure to measles virus outside the United States as evidenced by at least some of the exposure period (7–21 days before rash onset) occurring outside the United States and rash occurring within 21 days of entering the United States, with no known exposure to measles in the United States during that time. All other U.S. cases are considered U.S.-acquired. Laboratory confirmation of measles is made by detection in serum of measles-specific immunoglobulin M antibodies, isolation of measles virus, or detection of measles virus by nucleic acid amplification in an appropriate clinical specimen (e.g., nasopharyngeal/oropharyngeal swabs, nasal aspirates, throat washes, or urine). Monitoring of viral genotypes is an important component of measles surveillance and a tool to identify the likely source of imported viruses.

Imported Measles During January–February 2011

Of the 29 measles cases reported during January–February, 2011, a total of 28 were import-associated,* of which 16 (57%) were classified as imported cases; 13 of the imported cases (81%) were among U.S. residents. Of these 13 cases, seven (54%)

* Import-associated cases include 1) internationally imported cases, 2) import-linked cases (those related epidemiologically to imported cases), and 3) imported virus cases (for which no epidemiologic link has been identified but viral genetic evidence indicates an imported measles genotype). Additional information at http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/measles_2010.htm.

INSIDE

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

occurred in children aged 6–23 months. All seven patients had recently traveled internationally; they were residents of Massachusetts (two patients), Texas (one), New York (one), Pennsylvania (one), Washington (one), and California (one). Median age was 10 months (range: 7–23 months) (Table).

Four of the seven patients were hospitalized for measles-related complications: two with diarrhea and dehydration, one with persistent fever, and one with pneumonia. The median duration of hospitalization was 3.5 days; all seven recovered. Diagnosis of measles was delayed in three of the seven patients. One was hospitalized for 3 days for pneumonia and "drug-induced rash," with a measles diagnosis made only after an unvaccinated sibling developed measles. A second patient visited a pediatrician three times before a diagnosis of measles was made in an emergency department and the child was hospitalized. A third patient did not receive an initial medical evaluation until 6 days after onset, and measles was not suspected until a follow-up visit 2 days later.

Measles was laboratory confirmed in patients 2–7 (Table). Although specimens were not obtained from patient 1, five siblings epidemiologically linked to this patient subsequently developed measles, and four of those cases were laboratory confirmed.

The seven patients had traveled to at least six different countries; two traveled to countries in the World Health Organization (WHO) Region of the Americas. Although patient 1 traveled to Haiti during the exposure period, an extensive investigation in Haiti found no evidence of measles

TABLE. Characteristics of seven imported measles cases among U.S. residents aged 6–23 months* — United States, January–February 2011

Patient no.	Age at onset (mos)	Country visited	Period of visit	Date of rash onset	No. days hospitalized	Measles genotype
1	7	Haiti†	December 31, 2010–January 7, 2011	January 13, 2011	3	D4§
2	12	India	December 7, 2010–January 7, 2011	January 17, 2011	4	D8
3	10	Dominican Republic¶	January 3–8, 2011	January 21, 2011	0	D4
4	9	India/Qatar	November 15, 2010–January 13, 2011	January 18, 2011	0	Not done**
5	23	Philippines	Unknown date, 2010–January 25, 2011	January 29, 2011	7	D9
6	15	Nigeria	December 15, 2010–January 29, 2011	February 3, 2011	2	B3
7	8	India	January 23, 2011–February 13, 2011	February 13, 2011	0	Not done**

* None of the seven patients had received any doses of measles, mumps, and rubella (MMR) vaccine.
† Although the patient had traveled to Haiti during the incubation period, Haiti is not believed to be the source of the infection.
§ Virus was isolated and genotyped from the patient's sibling.
¶ An investigation in the Dominican Republic found that the likely source of the infection was a European tourist who had roomed adjacent to the patient's family at an international resort; no evidence of ongoing transmission was found.
** Either a specimen for viral testing was not collected or measles viral RNA was not detected in the specimen.

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

Suggested citation: Centers for Disease Control and Prevention. [Article title]. MMWR 2011;60:[inclusive page numbers].

transmission in that country. Further investigation identified another U.S. resident with onset of measles at about the same time as patient 1. This person had been in the same terminal of an international airport as patient 1 within a 2-hour interval suggesting a common exposure. For patient 3, an investigation conducted in the Dominican Republic identified as the likely source of this infection a European tourist with measles who stayed in a resort room adjacent to patient 3's family. The genotypes of virus isolated from patient 3 and patients linked epidemiologically to patient 1 all were D4 (Table), with genetic sequences closely related to those of viruses circulating in Europe. The genotypes detected in patients 2, 5, and 6 were the same as the genotypes associated with endemic transmission or recent outbreaks in the country of travel.

Imported Measles During 2001–2010

Of the 692 measles cases reported during 2001–2010, a total of 604 (87%) were import-associated. Of these, 292 cases (48%) were imported; 159 (54%) of the imported cases were in U.S. residents. Among the imports in U.S. residents, 47 (30%) were among children aged 6–23 months (range: 3–8 cases per year) (Figure). Among these 47 children, 23 were aged 6–11 months, 18 were aged 12–15 months, and six were aged 16–23 months. Although all 47 children had been eligible for MMR vaccination, only three (6%) had been vaccinated for measles before their departure. Fourteen (30%) of the 47 children were hospitalized; no deaths were reported.

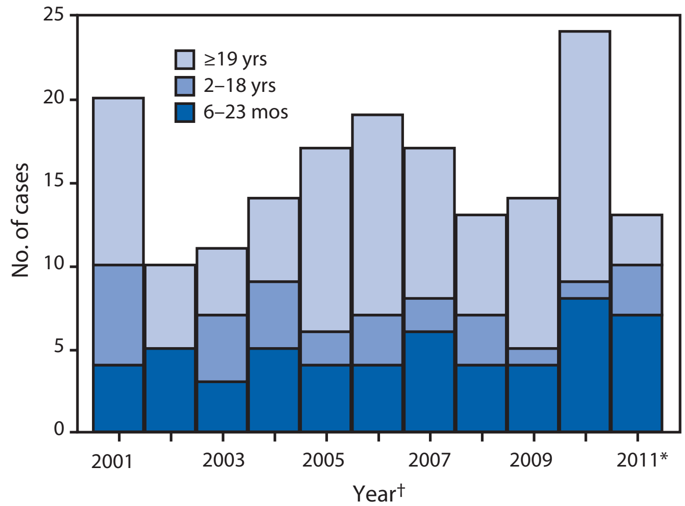
Reported by

NM Cocoros, MPH, Massachusetts Dept of Public Health. J Zipprich, PhD, California Dept of Public Health. D Kuhles, MD, Nassau County Dept of Health; E Rausch-Phung, MD, CR Schulte, DS Blog, MD, New York State Dept of Health. P Lurie, MD, Pennsylvania Dept of Health. R Wiseman, MPH, Texas Dept of State Health Svcs. C Kroll MPH, Clark County Public Health; C DeBolt, MPH, Washington State Dept of Health. PK Kutty, MD, SB Redd, AE Barskey, MPH, JS Rota, MPH, PA Rota, PhD, GL Armstrong, MD, WJ Bellini, PhD, KM Gallagher, DSc, Div of Viral Diseases, National Center for Immunization and Respiratory Diseases; AS Mahamud, MD, EIS Officer, CDC. *Corresponding contributor: Preeta Kutty, Div of Viral Diseases, National Center for Immunization and Respiratory Diseases, CDC, pkutty@cdc.gov.*

Editorial Note

Since measles was declared eliminated in the United States in 2000, elimination status has been maintained through high MMR vaccination coverage, and most measles cases have been associated with importation (*5*). MMR vaccine is recommended by ACIP and the American Academy of Pediatrics for

FIGURE. Number of imported measles cases in U.S. residents (N = 172), by age group — January 2001–February 2011



* January–February only.
† Based on date of rash onset.

routine use in all U.S. children at age 12–15 months, with a booster at age 4–6 years (*3,6*). Children aged ≥12 months who are traveling internationally should receive 2 doses of MMR vaccine, separated by at least 28 days. Children aged 6–11 months should receive 1 dose of MMR vaccine. Because serologic response to the measles component of the vaccine varies among infants aged 6–11 months, infants vaccinated before age 12 months should be revaccinated on or after the first birthday with 1 dose of MMR vaccine followed by a second dose at least 28 days later (*3,6*).

In this report, none of the seven children aged 6–23 months with imported measles in the first 2 months of 2011 had

What is already known on this topic?

Although measles was declared eliminated in the United States in 2000, imported cases continue to occur among U.S. travelers returning from areas of the world where measles is endemic.

What is added by this report?

In the first 2 months of 2011, a total of 13 imported cases were reported in U.S. residents, including seven cases in unvaccinated children aged 6–23 months. These 2-month totals were comparable to the number reported each year during 2001–2010, when a total of 159 imported cases were reported in U.S. residents, including 47 (range: 3–8 per year) in children aged 6–23 months, only three of whom had been vaccinated.

What are the implications for public health practice?

Before any international travel, children aged 6–11 months traveling outside the United States should receive 1 dose of measles, mumps, and rubella (MMR) vaccine, and children aged ≥12 months should receive 2 doses of MMR vaccine at least 28 days apart.

received MMR vaccine, and only three of the 47 with imported measles during 2001–2010 had received MMR vaccine. The reasons for nonvaccination of children often are unknown, but contributing to these might be a lack of perceived risk for severe measles (*7*), which resulted in the hospitalization of four of these seven children aged 6–23 months with measles reported in 2011.

Measles often is not considered in the initial differential diagnosis of children returning from international travel with a rash illness; as a result, diagnosis of measles frequently is delayed, as in three of the seven children with reported measles in 2011. One child was hospitalized for 3 days, yet a measles diagnosis was only made retrospectively after a sibling developed measles. Another visited a pediatrician three times before a diagnosis of measles was made in an emergency department, and a third did not have measles suspected until 8 days after onset. All of these infections and the associated sequelae were potentially preventable through adherence to recommendations for vaccination of children traveling outside the United States.

The frequency of imported measles among children aged 6–23 months also suggests that parents and clinicians might not be aware of recommendations to administer MMR vaccine to children as young as age 6 months when they are living or traveling abroad (*7*). The parents of one of these 2011 patients asked their pediatrician about vaccination for their child before traveling and were advised that it was unnecessary. Travelers to the WHO European Region should be aware that measles is endemic in several countries of that region, which was the source of 39% of U.S. measles imports during 2005–2008 (*8*).

Evidence to date supports the finding that measles has been eliminated throughout the Region of the Americas over the last decade. The region expects to document elimination of measles and rubella in every country by 2012. Nonetheless, in the United States, measles importations and transmission from imported cases continue to pose a threat to U.S. residents (*8,9*). Travelers can be exposed to measles in the country of travel or while en route to and from that country, in airports or on airplanes. An estimated 1.9 million U.S. children travel overseas each year and often are at risk for acquiring infectious diseases that might not be common in the United States (*10*). These findings highlight the importance of reviewing the vaccination history of anyone planning international travel. Clinicians also should maintain a high level of suspicion for measles in patients with febrile rash illnesses and recent travel outside the United States. Finally, physicians should report suspected measles cases immediately to their local health department and obtain specimens for measles testing, including viral specimens for confirmation and genotyping.

References

1. Bellini WJ, Rota JS, Lowe LE, et al. Subacute sclerosing panencephalitis: more cases of this fatal disease are prevented by measles immunization than was previously recognized. J Infect Dis 2005;192:1686–93.
2. Miller DL. Frequency of complications of measles, 1963. Report on a national inquiry by the Public Health Laboratory Service in collaboration with the Society of Medical Officers of Health. Br Med J 1964;2:75–8.
3. CDC. Measles, mumps, and rubella—vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1998;47(No. RR-8).
4. CDC. Manual for the surveillance of vaccine-preventable diseases. 4th ed., 2008–2009. Atlanta, GA: US Department of Health and Human Services, CDC; 2009. Available at http://www.cdc.gov/vaccines/pubs/surv-manual/default.htm. Accessed April 4, 2011.
5. Orenstein WA, Papania MJ, Wharton ME. Measles elimination in the United States. J Infect Dis 2004;189(Suppl 1):S1–3.
6. American Academy of Pediatrics. Measles. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. Red book: 2009 report of the Committee on Infectious Diseases. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009:444–55. Available at http://aapredbook.aappublications.org/cgi/content/full/2009/1/3.77. Accessed April 4, 2011.
7. CDC. Preventable measles among U.S. residents, 2001–2004. MMWR 2005;54:817–20.
8. Parker Fiebelkorn A, Redd SB, Gallagher K, et al. Measles in the United States during the postelimination era. J Infect Dis 2010;202:1520–8.
9. CDC. Measles outbreak—Hennepin County, Minnesota, February–March 2011. MMWR 2011;60:421.
10. CDC. The pre-travel consultation: routine vaccine-preventable diseases. In: Traveler's health: yellow book [Chapter 2]. Atlanta, GA: US Department of Health and Human Services, CDC; 2009. Available at http://wwwnc.cdc.gov/travel/yellowbook/2010/chapter-2/measles.aspx. Accessed April 4, 2011.

Outbreak of Invasive Listeriosis Associated with the Consumption of Hog Head Cheese — Louisiana, 2010

During January–June 2010, a total of 14 cases of laboratory-confirmed invasive listeriosis were reported to the Louisiana Office of Public Health (OPH). Isolates of *Listeria monocytogenes* from the blood samples of eight patients were identified as serotype 1/2a and had pulsed-field gel electrophoresis (PFGE) pattern combinations that were indistinguishable from one another. The detection of this cluster prompted an investigation in coordination with CDC, the Louisiana Department of Agriculture and Forestry (LDAF), and the U.S. Department of Agriculture's Food Safety and Inspection Service (USDA-FSIS). In-depth epidemiologic and environmental investigations of the cluster were initiated on July 26, including food history interviews of four patients. Three patients reported eating hog head cheese (a meat jelly made from swine heads and feet); the product was purchased at two grocery stores in Louisiana. A traceback investigation determined that a single brand of hog head cheese was common between the two grocery stores. *L. monocytogenes* serotype 1/2a was cultured from one of three product samples and from two of 16 environmental samples collected by LDAF at the processing establishment; the product and one of the two environmental samples yielded isolates with PFGE pattern combinations that were indistinguishable from the patient isolates. On August 14, LDAF coordinated a voluntary recall of approximately 500,000 pounds of hog head cheese and sausage because of possible contamination with *L. monocytogenes*. This is the first published report of an invasive listeriosis outbreak associated with hog head cheese, which is a ready-to-eat (RTE) meat. USDA-FSIS has a "zero tolerance" policy for *L. monocytogenes* contamination of RTE food products (*1*), requesting recall of such products at any detectable level of *L. monocytogenes* contamination. LDAF imposes and enforces equivalent requirements in state-inspected establishments.

Invasive listeriosis has been nationally notifiable since 1999. In 2003, the Council of State and Territorial Epidemiologists recommended prompt, routine interviews of all patients using a standardized questionnaire and forwarding all *L. monocytogenes* isolates from clinical laboratories for PFGE subtyping at public health laboratories (*2*). Accordingly, the Louisiana OPH collects demographic and clinical information for all reported cases of invasive listeriosis. Patients are interviewed immediately for food histories using CDC's Listeria Initiative questionnaire.* Patient isolates are sent to the Public Health Central Laboratory at OPH for confirmation and PFGE characterization.

Louisiana OPH epidemiologists noted that 14 cases of invasive listeriosis had been reported during January–June 2010, which exceeded the state's average of five cases reported during each January–June period during the previous 3 years. For this investigation, a cluster-associated case was defined as isolation of *L. monocytogenes* serotype 1/2a from a normally sterile site (e.g., blood or cerebrospinal fluid) or from placental or fetal tissue (in the setting of miscarriage or stillbirth) since January 1, 2010, and PFGE pattern combination GX6A16.0001 and GX6A12.0001.

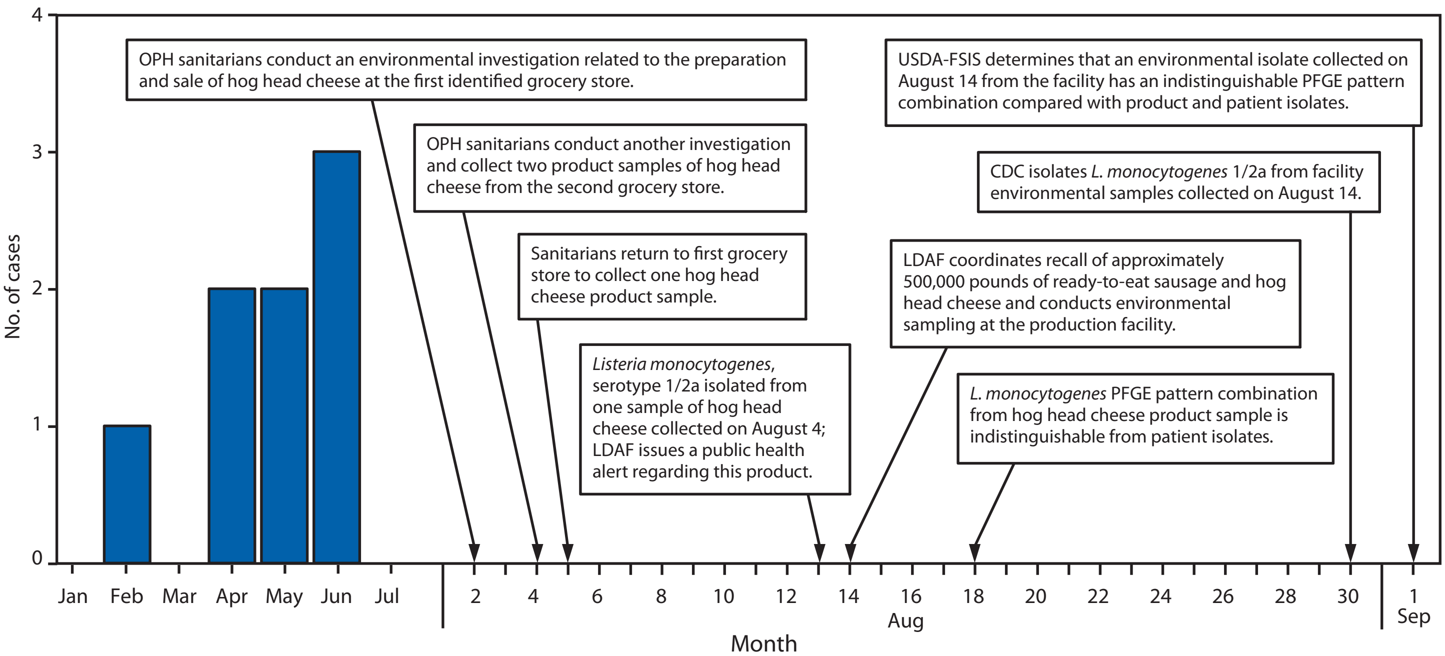
Eight patients had illnesses that met the case definition. Their median age was 64 years (range: 38–93 years). Six patients were men; no patients were pregnant. Six patients had one or more underlying medical conditions (i.e., human immunodeficiency virus [HIV] infection, alcohol abuse, cancer, and diabetes mellitus). Illness onsets occurred from February 18 to June 16 (Figure). Signs and symptoms included fever (n = 6 patients), altered mental status (n = 3), diarrhea (n = 3), vomiting (n = 3), and weakness (n = 2). Seven patients were hospitalized; two patients died.

OPH epidemiologists obtained food histories from four patients; the remaining patients could not be reached for interview because of their illness or death. Two patients initially reported eating hog head cheese purchased from the same grocery store. Upon re-interview, a third patient also reported eating hog head cheese purchased from a grocery store in another city. A fourth patient could not be reached for re-interview but had initially reported eating "other deli meats," a category that would include hog head cheese. The traceback investigation determined that only one brand of hog head cheese was sold at both stores, suggesting that this brand was the outbreak source.

OPH sanitarians conducted an environmental investigation at both grocery stores to gather additional information on the suspect product. The sanitarians determined that hog head cheese offered for sale arrived in small, 0.7 pound blocks that were individually vacuum-sealed at the processing establishment. Each store weighed and priced the product and sold it in the refrigerated meat section. The sanitarians collected one unopened package of mild hog head cheese from the first store and two unopened packages of hog head cheese, one mild and one spicy, from the second store. At CDC's Enteric Diseases Laboratory Branch, *L. monocytogenes* serotype 1/2a with the outbreak PFGE pattern combination was isolated from the package of spicy hog head cheese.

* Available at http://www.cdc.gov/nationalsurveillance/listeria_surveillance.html.

FIGURE. Number of invasive listeriosis cases, by month of patient specimen collection, and investigation timeline after an outbreak associated with consumption of hog head cheese — Louisiana, 2010



Abbreviations: OPH = Louisiana Office of Public Health; LDAF = Louisiana Department of Agriculture and Forestry; PFGE = pulsed-field gel electrophoresis; USDA-FSIS = U.S. Department of Agriculture Food Safety and Inspection Service.

This finding triggered a voluntary recall of approximately 500,000 pounds of hog head cheese and sausage that was processed on the same equipment. LDAF also collected 16 environmental samples from the processing establishment. Cultures of samples from a refrigeration unit and a door threshold yielded *L. monocytogenes*. An isolate from the refrigeration unit exhibited the outbreak PFGE pattern combination, and an isolate from the door threshold exhibited a pattern combination that was new to the PulseNet database (GX6A16.1362 and GX6A12.1939). CDC and the USDA Agricultural Research Service further characterized the patient, product, and environmental isolates using multiple-locus variable-number tandem repeat analysis and multilocus genotyping (*3*). All isolates, with the exception of the isolate from the door threshold, displayed indistinguishable multiple-locus variable-number tandem repeat analysis patterns and identical multilocus genotyping haplotypes (2.12_1/2a), further strengthening the association between the outbreak-associated cases and the hog head cheese producer.

Reported by

E Delaune, MPH, T Sokol, MPH, R Ratard, MD, Louisiana Office of Public Health. L Allen, MSPH, B Kissler, MPH, S Seys, MPH, K Holt, DVM, P Evans, PhD, Food Safety and Inspection Svc, T Ward, PhD, Agricultural Research Svc, US Dept of Agriculture; B Silk, PhD, K Jackson, MPH, L Graves, E Trees, PhD, DVM, Div of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC. *Corresponding contributor: Benjamin Silk, Div of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC, 404-639-0536, bsilk@cdc.gov.*

Editorial Note

L. monocytogenes can be found in soil, water, and silage, and causes a spectrum of illness ranging from asymptomatic infection to severe disease in both animals and humans. Invasive listeriosis, including sepsis and meningoencephalitis, occurs predominantly in older adults, persons with impaired immune systems, fetuses, and neonates. Based on its ubiquitous nature and the ability of the bacterium to establish itself in food processing environments, *L. monocytogenes* presents unique challenges for the food industry and regulatory agencies in their efforts to prevent the contamination of RTE foods. In addition, unlike most foodborne pathogens, *L. monocytogenes* can multiply at refrigerator temperatures.

Most cases of invasive listeriosis in the United States are sporadic (*4*). However, the advent of PulseNet for molecular subtyping of foodborne bacterial pathogens has revolutionized the ability of public health and regulatory officials to detect clusters and outbreaks and trace them to their sources (*5*). PulseNet is a network of laboratories in local, state, and federal health and regulatory agencies that use standard protocols, equipment, and nomenclature to upload PFGE patterns into a central database for comparison with one another. For *L. monocytogenes*, this usually consists of two patterns per isolate (i.e., images resulting from the use of two restriction enzymes, *AscI* and *ApaI*). In Louisiana, when OPH epidemiologists noted an unusually high listeriosis case count in 2010, PulseNet showed through molecular subtyping that eight cases were related, prompting the investigation.

Epidemiologic investigations of listeriosis clusters are challenging because case counts often are relatively small, some patients might not be available for interview, and others frequently report consumption of common food items that are higher-risk foods for *L. monocytogenes* contamination (*6*). In addition, the lengthy and variable incubation period of listeriosis (3–70 days) can result in recall bias and difficulty establishing an appropriate exposure period for food histories (*7*). Finally, immunocompromised persons who would be suitable controls for matched case-control studies often are difficult to identify. To address these challenges, CDC established the Listeria Initiative in 2004 to aid investigations of listeriosis clusters by using a standardized, extended case-form questionnaire to obtain timely food exposure histories from all persons with listeriosis reported in the United States (*2*). Patients are interviewed once illness is confirmed (rather than waiting for cluster detection). Using the Listeria Initiative questionnaire and associated database, hog head cheese was recognized as an uncommon food item that was common among the patients.

The implicated brand of hog head cheese originated from a small, state-inspected processing establishment in Louisiana, which produces approximately 600 pounds of hog head cheese per week. This establishment was under federal inspection until January 2007. Routine FSIS microbiologic testing of products at the establishment detected *L. monocytogenes* contamination in October and December 2006; the company voluntarily recalled 290 pounds of hog head cheese in January 2007. Four *L. monocytogenes* isolates from USDA-FSIS samples collected in 2006 did not match the 2010 outbreak-related PFGE pattern combination. In addition, *Listeria* contamination was not detected in any of the 12 product samples collected by LDAF since 2007; analysis of routine environmental samples collected by the management of the processing establishment during January–July 2010 also did not detect *Listeria*. However, the outbreak strain was identified in environmental samples collected during the investigation, which was several weeks after the manufacture of the outbreak-associated products (Figure), suggesting that persistent environmental contamination in the processing establishment was responsible for product contamination and resulting illnesses.

USDA-FSIS and state-inspected, meat-producing and poultry-producing establishments are required to develop a hazards analysis critical control points (HACCP) plan to prevent or eliminate reasonable hazards (including *L. monocytogenes* contamination of RTE products) using effective interventions. An FSIS risk assessment (*8*) determined that using combinations of interventions (e.g., testing and sanitation of food contact surfaces, prepackaging and postpackaging interventions, and the use of growth inhibitors) was more effective than any single intervention. The Listeria Rule[†] encourages establishments producing RTE products subject to postlethality contamination (e.g., contamination after cooking) to introduce combinations of interventions to eliminate and prevent the growth of *L. monocytogenes* in their products. Establishments choosing not to introduce such interventions or to only introduce growth inhibitors are required to test food contact surfaces for *Listeria* and are subject to more frequent product and surface sampling by the regulatory agency.

Although this is the first report of a listeriosis outbreak associated with the consumption of hog head cheese, RTE deli meats are a recognized vehicle for *Listeria* infection and have been associated with several past outbreaks in the United States (*9*). Persons at risk for listeriosis, including older adults, pregnant women, and persons with immunocompromising conditions or therapies, should take additional precautions to lower their risk for infection.[§] CDC, USDA-FSIS, and FDA have developed food safety education guidance for persons at risk for listeriosis and those who prepare meals for at-risk persons (Box).

[†] Additional information available at http://www.fsis.usda.gov/oppde/rdad/frpubs/97-013f.htm.

[§] Additional information available at http://www.cdc.gov/nczved/divisions/dfbmd/diseases/listeriosis.

Acknowledgments

The findings in this report are based, in part, on the contributions of state and federal field staff members; W Glapion, M Walker, R Darville, A Bernard, T Jefferson, J Bailey, S Howat, Louisiana Office of Public Health; J Cornett, DVM, R Bane, E Thompson, A Busch, DVM, J Coleman, K Kenne, R Eckel, Food Safety and Inspection Svc, T Usgaard, Agricultural Research Svc, US Dept of Agriculture; and T Harper, A Sabol, TA Nguyen, MPH, I Williams, PhD, Div of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC.

BOX. Guidance for listeriosis prevention among persons at risk

Eating food contaminated with the bacterium *Listeria monocytogenes* can cause a potentially life-threatening, invasive disease called listeriosis. Pregnant women, older adults, and persons with weakened immune systems caused by medical conditions or treatment are at higher risk for listeriosis. Symptoms include fever, headache, stiff neck, confusion, loss of balance, and convulsions. Pregnant women might experience only mild illness; however, listeriosis during pregnancy can lead to miscarriage or stillbirth, premature delivery, or life-threatening infection of the newborn.

CDC, the U.S. Department of Agriculture (USDA) Food Safety and Inspection Service, and Food and Drug Administration recommend that at-risk persons and those who prepare meals for at-risk persons adhere to the following guidance.

Pay attention to the following foods and advice:

- Do not eat hot dogs, lunch meats, cold cuts, other deli meats (e.g., bologna), or fermented or dry sausage, unless they are reheated to 165°F (74°C) or until steaming hot just before serving.
- Do not eat refrigerated pâté or meat spreads from a deli or meat counter or from a refrigerated section of the store. Foods that do not need refrigeration, such as canned or shelf-stable pâté and meat spreads, are safe to eat. Refrigerate after opening.
- Do not eat refrigerated smoked seafood, unless it is contained in a cooked dish, such as a casserole, or unless it is a canned or shelf stable product. Refrigerated smoked seafood, such as salmon, trout, whitefish, cod, tuna, or mackerel, is most often labeled as "nova-style," "lox," "kippered," "smoked," or "jerky." The fish is found in the refrigerator section or sold at seafood and deli counters of grocery stores and delicatessens. Canned and shelf stable tuna, salmon, and other fish products are safe to eat.
- Do not drink raw (unpasteurized) milk, and do not eat foods that have unpasteurized milk in them.
- Do not eat soft cheese such as feta, queso blanco, queso fresco, brie, Camembert, as well as blue-veined cheeses, and panela cheese (queso panela) unless it is labeled as made with pasteurized milk. Make sure the label says, "Made with pasteurized milk."

To keep food safe:

- *Listeria monocytogenes* can grow in the refrigerator. Use a refrigerator thermometer to check the refrigerator's inside temperature. The refrigerator should be 40°F (4°C) or lower, and the freezer should be 0°F (-18°C) or lower.
- Clean up all spills in the refrigerator right away, especially juices from hot dog and lunch meat packages, raw meat, and raw poultry.
- Clean the inside walls and shelves of the refrigerator with hot water and liquid soap, then rinse.
- Divide leftovers into shallow containers to promote rapid, even cooling. Cover with airtight lids or enclose in plastic wraps or aluminum foil. Use leftovers within 3 to 4 days.
- Use precooked or ready-to-eat food as soon as possible. Do not store the product in the refrigerator beyond the use-by date; follow USDA refrigerator storage time guidelines:
  - Hot dogs: store opened package no longer than 1 week and unopened package no longer than 2 weeks.
  - Lunch and deli meat: store factory-sealed, unopened package no longer than 2 weeks. Store opened packages and meat sliced at a local deli no longer than 3 to 5 days.

Follow these four simple steps:

1. *Clean:* Wash hands and surfaces often. Wash hands often with soap and warm water, especially after touching hot dogs, raw meat, chicken, turkey, seafood, or their juices. Use clean dishes, spoons, knives, and forks. Wash countertops with hot soapy water and clean up spills right away. To keep cutting boards clean, wash them with hot, soapy water after each use. If sanitizing a cutting board, use a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water to flood the surface of the cutting board; allow it to stand for several minutes. Rinse with clear water and air or pat dry with clean paper towels.
2. *Separate:* Do not cross-contaminate. Keep raw meat, fish, and poultry away from other food that will not be cooked. Use one cutting board for fresh produce and bread and a separate one for raw meat, poultry, and seafood. Never place cooked food on a plate that previously held raw meat, poultry, seafood, or eggs without first washing the plate with hot soapy water. Do not reuse marinades used on raw foods unless they are brought to a boil first.
3. *Cook:* Cook to proper temperatures. Use a food thermometer to ensure that food is cooked to a safe minimum internal temperature. Cook ground beef or pork to 160°F (71°C), poultry to 165°F (74°C), and seafood to 145°F (63°C). Cook shrimp, lobster, and crab until they turn red and the flesh is pearly opaque. Cook clams, mussels, and oysters until the shells open. Cook eggs until the yolks and whites are firm. Use only recipes in which the eggs are cooked or heated to 160°F (71°C).
4. *Chill:* Refrigerate promptly. Refrigerate or freeze within 2 hours; refrigerate or freeze within 1 hour in hot weather (≥90°F [≥32°C]). Do not leave meat, fish, poultry, or cooked food sitting out. Purchase perishable foods last, and go directly home from the grocery store. In hot weather, take a cooler with ice or another cold source to transport foods safely.

Additional food safety guidance for at-risk persons and multi-language publications are available at http://origin-www.fsis.usda.gov/fact_sheets/at_risk_&_underserved_fact_sheets/index.asp.

What is already known on this topic?

Multistate outbreaks of listeriosis led to U.S. regulatory policy changes and industry controls of *Listeria monocytogenes* contamination in ready-to-eat (RTE) meat and poultry products.

What is added by this report?

This is the first report of an association between an outbreak of invasive listeriosis and hog head cheese, indicating continuing challenges for RTE meat processors to prevent *L. monocytogenes* contamination, and the vulnerability of at-risk populations to invasive infections through consumption of contaminated RTE meat.

What are the implications for public health practice?

The combined application of PulseNet, a molecular subtyping network, and the Listeria Initiative, an enhanced surveillance program, was indispensible for the outbreak investigation and subsequent identification and recall of potentially contaminated product.

References

1. US Department of Agriculture, Food Safety and Inspection Service. Compliance guidelines to control *Listeria monocytogenes* in post-lethality exposed ready-to-eat meat and poultry products. Washington, DC: US Department of Agriculture; 2006 Available at http://www.fsis.usda.gov/oppde/rdad/frpubs/97-013f/lm_rule_compliance_guidelines_may_2006.pdf. Accessed March 29, 2011.
2. Council of State and Territorial Epidemiologists. CSTE position statement 03-ID-01: *Listeria* case surveillance. Atlanta, GA: Council of State and Territorial Epidemiologists; 2003. Available at http://www.cste.org/ps/2003pdfs/2003finalpdf/03-id-01revised.pdf. Accessed March 29, 2011.
3. Ward TJ, Ducey TF, Usgaard T, Dunn KA, Bielawski JP. Multilocus genotyping assays for single nucleotide polymorphism-based subtyping of *Listeria monocytogenes* isolates. Appl Environ Microbiol 2008;74:7629–42.
4. Varma JK, Samuel MC, Marcus R, et al. *Listeria monocytogenes* infection from foods prepared in a commercial establishment: a case-control study of potential sources of sporadic illness in the United States. Clin Infect Dis 2007;44:521–8.
5. Graves LM, Hunter SB, Ong AR, et al. Microbiological aspects of the investigation that traced the 1998 outbreak of listeriosis in the United States to contaminated hot dogs and establishment of molecular subtyping-based surveillance for *Listeria monocytogenes* in the PulseNet network. J Clin Microbiol 2005;43:2350–5.
6. Food and Drug Administration, US Department of Agriculture. *Listeria monocytogenes* risk assessment: quantitative assessment of relative risk to public health from foodborne *Listeria monocytogenes* among selected categories of ready-to-eat foods. Silver Spring, MD: US Food and Drug Administration; 2003. Available at http://www.fda.gov/food/scienceresearch/researchareas/riskassessmentsafetyassessment/ucm183966.htm. Accessed April 6, 2011.
7. Swaminathan B, Gerner-Smidt P. The epidemiology of human listeriosis. Microbes Infect 2007;9:1236–43.
8. US Department of Agriculture, Food Safety Inspection Service. Risk assessment for *Listeria monocytogenes* in deli meat. Washington, DC: US Department of Agriculture; 2003. Available at http://www.fsis.usda.gov/pdf/lm_deli_risk_assess_final_2003.pdf. Accessed March 29, 2011.
9. Gottlieb SL, Newborn, EC, Griffin PM, et al. Multistate outbreak of listeriosis linked to turkey deli meat and subsequent changes in US regulatory policy. Clin Infect Dis 2006;42:29–36.

Assessment of ESSENCE Performance for Influenza-Like Illness Surveillance After an Influenza Outbreak — U.S. Air Force Academy, Colorado, 2009

The Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE), version II, designed by the Johns Hopkins University Applied Physics Laboratory and the U.S. Department of Defense (DoD), is an Internet-based syndromic disease surveillance system used by civilian and military health departments (*1*). ESSENCE was designed to increase the timeliness of outbreak detection, serving as an early warning system and providing opportunities to prevent and control the spread of infection. After a 2009 pandemic influenza A (H1N1) outbreak at the U.S. Air Force (USAF) Academy in Colorado, CDC was invited to conduct an evaluation of the ESSENCE influenza-like illness (ILI) surveillance system to assess its performance during the outbreak (*2,3*). Medical records at the USAF Academy clinics from June 25 through July 8, 2009, the period of the outbreak, were reviewed. This report summarizes the results of the evaluation, which demonstrated strengths in data quality, flexibility, and representativeness; however, ESSENCE was not useful for detecting or monitoring the H1N1 outbreak because of its lack of timeliness (1–3 day delay), inadequate sensitivity (71.4%), and poor predictive value positive (PVP) (31.8%) for identifying ILI cases. In this localized, single-source outbreak, ESSENCE did not serve as an early warning system for an emerging infectious disease and did not detect the outbreak soon enough to institute prevention and control measures that might have slowed the spread of infection. More frequent Internet data transmissions from the clinics to the ESSENCE server could improve timeliness, and PVP could be enhanced by including measured body temperature in the ESSENCE ILI case definition.

The utility of syndromic disease surveillance for early outbreak detection and improvement of public health response remains controversial (*4–7*). A survey of U.S. health departments indicated that the most common application for syndromic surveillance was to monitor the start and stop of the annual influenza season, but that it was less useful for local outbreak detection (*4*). Other studies found that syndromic surveillance has been useful to identify localized respiratory, dermatologic, and gastrointestinal disease outbreaks (*5–7*).

During June 25–July 24, 2009, an H1N1 outbreak occurred at the USAF Academy in Colorado, with 134 cases confirmed among a population of USAF 1,376 basic cadet trainees (*3*). Although ESSENCE is used at the USAF Academy, public health officials became aware of the outbreak before ESSENCE indicated the increase in ILI cases. After this large outbreak, the USAF Academy invited CDC to evaluate ESSENCE as an ILI surveillance system.

The U.S. military has used ESSENCE since 2003 to detect and monitor disease outbreaks. DoD provides an annual budget for system maintenance and development and releases updated versions of the system as surveillance needs change. ESSENCE identifies patients based on provider-assigned *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes that are entered into the electronic medical record (*1*). The ESSENCE ICD-9-CM code set for ILI* was established based on an analysis of medical records and respiratory specimens to determine the codes that most accurately represent ILI (*8,9*). By regular secure data transmissions via the Internet, the ESSENCE server identifies new cases and, using temporal algorithms that predict expected daily fluctuation, determines whether an increasing trend has occurred, indicating a possible outbreak (*1,8,9*). Raw data and aggregate reports, in the form of line graphs, are available via a password-protected ESSENCE website. An increase in syndromic cases above predicted thresholds is highlighted as a color-coded alert. Privacy and confidentiality are maintained with patient identification numbers and annual information protection training for users. In 2003, using past military and civilian data, an initial evaluation determined that ESSENCE detected eight of eight respiratory disease outbreaks within an average of 1 day after the event (*1*).

CDC's *Updated Guidelines for Evaluating Public Health Surveillance Systems* was used to assess the usefulness, simplicity, flexibility, data quality, acceptability, representativeness, timeliness, stability, sensitivity, and PVP of ESSENCE for the USAF (*2*). To determine sensitivity and PVP, medical record data from ILI case-patient visits at the USAF Academy acute care and cadet clinics during June 25–July 8, 2009, were collected. For the medical record review, ILI was defined as measured temperature ≥100.0°F (≥37.8°C) and cough or sore throat. Medical record data collection included cough, sore throat, measured temperature, and the results of respiratory disease laboratory tests for influenza A, influenza B, H1N1, adenovirus, and group A streptococcus bacteria. Patients from

* The ESSENCE ICD-9-CM codes for ILI include the following: 079.99 viral infection, not otherwise specified; 382.9 otitis media, not otherwise specified; 460 acute nasopharyngitis; 461.9 acute sinusitis, not otherwise specified; 465.9 acute upper respiratory infection, not otherwise specified; 466.0 acute bronchitis; 486 pneumonia, organism not otherwise specified; 490 bronchitis, not otherwise specified; 780.6 fever; 780.60 fever, unspecified; 780.64 chills (without fever); 786.2 cough.

the same period were identified on the ESSENCE ILI website to collect the ICD-9-CM codes. Sensitivity and PVP were calculated using 1) medical record–confirmed ILI, as defined and 2) laboratory confirmation of a respiratory infection, as criterion standards. USAF Academy, USAF School of Aerospace Medicine (USAFSAM), DoD, and CDC staff members who used ESSENCE daily were interviewed to assess the remaining evaluation criteria.

This evaluation found that the usefulness of ESSENCE varied by user. CDC, which used the aggregate USAF and DoD data, found ESSENCE useful to monitor national syndromic disease activity, and USAFSAM staff members found it useful to monitor disease activity at each base. The USAF Academy indicated ESSENCE was useful to monitor the local influenza season and determine syndromic baselines. Although users investigated ESSENCE alerts and worrying trends, most alerts and trends were time-consuming false alarms that revealed normal disease variations.

Regarding simplicity of operations and structure, the ESSENCE website's aggregate reports, line graphs, and color-coded alerts were easy to comprehend. ESSENCE's flexibility to adapt was demonstrated by the updated versions released by DoD based on user feedback and changes in surveillance needs, and the raw data query functions available to ESSENCE users. Data quality, or the completeness and validity of the data, was established by extracting demographic and medical information from official DoD systems, and scheduling automated batched data transmissions to the ESSENCE server at night, during periods of lower Internet usage to reduce transmission interruptions. For acceptability, or the willingness to participate in the surveillance system, data transmission to the ESSENCE server was automated, and personnel at the Academy and USAFSAM had passwords, although cumbersome to attain and maintain, to use ESSENCE in their daily operations. ESSENCE was determined to have a high degree of representativeness, in that it included all DoD beneficiaries visiting all USAF outpatient clinics, and thus it reported all medical events. Timeliness, or the time of the clinic visit to the time the information appeared on the ESSENCE website, was 1–3 days (*10*). Stability, or the reliability and availability of the system, was maintained by the annual DOD budget and the infrequent occasions when ESSENCE was unavailable to the user.

Of the 540 medical records reviewed to assess sensitivity and PVP, 189 had a laboratory test result. Compared with medical record–confirmed ILI, ESSENCE ILI sensitivity was calculated at 71.4% and PVP at 31.8% (Table). Compared with laboratory-confirmed respiratory infections, ESSENCE ILI sensitivity and PVP were 78.6% and 49.5%, respectively. When the evaluators added a documented, measured body

What is already known on this topic?

The Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE), version II, is an effective syndromic disease surveillance system to determine the normal seasonal variation of influenza-like illness (ILI) on a military installation but might not be effective for early detection and monitoring of ILI outbreaks.

What is added by this report?

ESSENCE's strengths are data quality, flexibility, and representativeness, but it did not sufficiently detect or monitor the H1N1 outbreak because of its lack of timeliness (1–3 day delay), inadequate sensitivity (71.4%), and poor predictive value positive (PVP) (31.8%) for identifying ILI cases. PVP could be improved by introducing a measured body temperature to the ESSENCE case definition.

What are the implications for public health practice?

More frequent batch data transmissions to shorten the time between patient visits and generation of alerts could enhance ESSENCE's usefulness for detecting and monitoring an actual outbreak.

TABLE. Ability of ESSENCE and modified ESSENCE* to detect respiratory illness, compared with medical record and laboratory-confirmed identification of cases — U.S. Air Force Academy, Colorado, June 25–July 8, 2009

		Medical record–confirmed ILI				Laboratory-confirmed respiratory infection			
Surveillance method	Infection indentified	Yes	No	Total	PVP (%)	Yes	No	Total	PVP (%)
ESSENCE ILI	Yes	105	225	**330**	(31.8)	55	56	**111**	(49.5)
	No	42	168	**210**		15	63	**78**	
	Total	**147**	**393**	**540**		**70**	**119**	**189**	
	Sensitivity (%)	(71.4)				(78.6)			
Modified ESSENCE ILI*	Yes	105	5	**110**	(95.5)	46	23	**69**	(66.7)
	No	42	388	**430**		24	96	**120**	
	Total	**147**	**393**	**540**		**70**	**119**	**189**	
	Sensitivity (%)	(71.4)				(65.7)			

Abbreviations: ESSENCE = Electronic Surveillance System for the Early Notification of Community-Based Epidemics; ILI = influenza-like illness; PVP = predictive value positive.

* Addition of measured body temperature ≥100.0°F (≥37.8°C).

temperature of ≥100.0°F (≥37.8°C) to the ESSENCE ILI case definition, the ESSENCE ILI sensitivity, compared with medical records, remained the same, but PVP increased to 95.5%; however, when compared with laboratory confirmation, ILI sensitivity was 65.7%, and PVP was 66.7% (Table).

Reported by

C Witkop, MD, USAF Academy, Colorado. M Duffy, DVM, USAF School of Aerospace Medicine, Wright-Patterson Air Force Base, Ohio. L Cohen, MD, Scientific Education and Professional Development Program Office, Office of Surveillance, Epidemiology, and Laboratory Svcs; D Fishbein, MD, Div of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Diseases; M Selent, DVM, EIS Officer, CDC. *Corresponding contributor: Monica Selent, Div of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Disease, CDC, 404-520-2332, mselent@cdc.gov.*

Editorial Note

This evaluation found that the major strength of ESSENCE ILI surveillance was its usefulness for monitoring annual seasonal influenza activity. Other strengths included simplicity, flexibility, data quality, representativeness, and stability. Weaknesses included low PVP, lack of timeliness, and limited usefulness to detect and monitor an ILI outbreak.

Retrospectively, ESSENCE showed an increasing ILI trend 2–4 days before an Academy mass gathering; however, the combination of the ESSENCE time delay, occurrence of the gathering over a holiday weekend, and short incubation period of H1N1 meant the increasing trend was not detected in time to institute preventive measures. To improve timeliness, medical data transmission could be scheduled in smaller, more frequent batches throughout the day so that changing trends would appear on the ESSENCE website sooner.

After USAFSAM judged that the ILI PVP of the surveillance system was too low to distinguish actual outbreaks, the addition of a measured body temperature ≥100.0°F (≥37.8°C) to the ESSENCE case definition was evaluated to determine whether PVP, and potentially sensitivity, could be improved. Compared with medical record–confirmed ILI and laboratory-confirmed respiratory infections as criterion standards, PVP did increase with the addition. An independent study using only laboratory confirmation and ICD-9-CM–based ILI surveillance also found that PVP increased by adding measured body temperature (*10*). The large PVP increase with medical record confirmation was attributed to the low number of ESSENCE ILI cases with an elevated temperature at the clinic, potentially resulting from antipyretic use or actual afebrile infection. When compared with laboratory-confirmed respiratory infections, sensitivity decreased. However, with medical record confirmation, sensitivity stayed the same, because all the ILI cases still had an elevated temperature, per the medical record case definition, and an ILI ICD-9-CM code, per the ESSENCE case definition. Despite the improvement in PVP by adding a measured body temperature to the ESSENCE case definition, the potential loss in sensitivity might reduce the ability to detect actual ILI outbreaks. Users need to determine if this loss is acceptable for their purposes.

The findings in this report are subject to at least three limitations. First, as new data arrive in ESSENCE, the web page does not record the date additional case-patients appeared. Therefore, evaluators could only estimate when ESSENCE issued an alert to the ILI outbreak, based on historical documentation. Second, this evaluation collected data from only one outbreak at one USAF base. Additional outbreak analyses from other USAF bases are needed to judge the effectiveness of ESSENCE as an early-warning outbreak system for the USAF. Finally, the results of this evaluation are not generalizable to the other military services or civilian public health agencies, which might use ESSENCE differently.

This evaluation showed that, despite strengths in data quality, flexibility, and representativeness, ESSENCE did not serve as an early warning system for an emerging infectious disease during a localized, single-source outbreak, and did not detect the outbreak soon enough to allow prevention and control measures to be instituted. For enhanced outbreak detection and monitoring, more frequent Internet data transmissions would improve ESSENCE's timeliness. Additionally, the inclusion of measured body temperature in the ESSENCE ILI case definition could improve PVP, but with a possible loss in sensitivity resulting from exclusion of afebrile cases. As the strengths, weaknesses, and limitations of ILI surveillance as an early warning system for emerging infectious disease become better understood, future development should investigate how informatics and information technology can overcome ILI surveillance weaknesses.

Acknowledgments

This report is based, in part, on contributions by K Cox, MD, US Army Center for Health Promotion and Preventive Medicine; J Collins, R Devine, A Cox, A Owens, M Green, US Air Force Academy; and C Hales, PhD, N Molinari, PhD, N Megateli-Das, MS, P Szymanowski, MPH, C Adams, and J Herrera, CDC.

References

1. CDC. ESSENCE II and the framework for evaluating syndromic surveillance systems. MMWR 2004;53(Suppl):159–65.
2. CDC. Updated guidelines for evaluating public health surveillance systems: recommendations from the Guidelines Working Group. MMWR 2001;50(No. RR-13).

3. Witkop CT, Duffy MR, Macias EA, et al. Novel influenza A (H1N1) outbreak at the U.S. Air Force Academy. Am J Prev Med 2010;38:121–6.
4. Buehler JW, Sonticker A, Paladini M, Soper P, Mostashari F. Syndromic surveillance practices in the United States: findings from a survey of state, territorial, and selected local health departments. Adv Dis Surveill 2008;6:1–20.
5. Ang BCH, Chen MIC, Goh TLH, Ng YY, Fan SW. An assessment of electronic captured data in the Patient Care Enhancement System (PACES) for syndromic surveillance. Ann Acad Med Singapore 2005;34:539–43.
6. CDC. Comparison of syndromic surveillance and a sentinel provider system in detecting an influenza outbreak—Denver, Colorado, 2003. MMWR 2005;54(Suppl):151–6.
7. Lewis MD, Pavlin JA, Boomsma LG, Yevgeniy E, Kelley PW. Disease outbreak detection system using syndromic data in the greater Washington DC area. Am J Prev Med 2002;23:180–6
8. Marsden-Haug N, Foster VB, Gould PL, Elbert E, Wang H, Pavlin JA. Code-based syndromic surveillance for influenza-like illness by *International Classification of Diseases, Ninth Revision*. Emerg Infect Dis 2007;13:207–16.
9. Batancourt JA, Hakre S, Polyak CS, Pavlin JA. Evaluation of ICD-9 codes for syndromic surveillance in the electronic surveillance system for the early notification of community-based epidemics. Mil Med 2007;172:346–52.
10. Pattie DC, Atherton MJ, Cox KL. Electronic influenza monitoring: evaluation of body temperature to classify influenza-like illness in a syndromic surveillance system. Q Manage Health Care 2009;18:91–102.

Assessing Completeness of Perinatal Hepatitis B Virus Infection Reporting Through Comparison of Immunization Program and Surveillance Data — United States

In the United States, an estimated 24,000 women with hepatitis B virus (HBV) infection give birth each year (*1*). To prevent mother-to-child HBV transmission, the Advisory Committee on Immunization Practices (ACIP) recommends administering postexposure prophylaxis of hepatitis B vaccine (HepB) and hepatitis B immune globulin (HBIG) to infants born to HBV-infected women within 12 hours of delivery, followed by completion of the HepB series (*2*). In 1990, CDC established a national Perinatal Hepatitis B Prevention Program (PHBPP) to support federal immunization program grantees in performing this ACIP-recommended case management of infants born to HBV-infected women. Perinatal HBV infections currently are reported by state and local health departments to CDC through two parallel processes: by immunization programs as part of federal program grant reporting requirements and by communicable disease surveillance units as part of the National Notifiable Diseases Surveillance System (NNDSS). A review of perinatal HBV infection reporting for infants born in 2005 identified 68 cases reported by immunization programs and 47 cases reported by communicable disease surveillance units, resulting in a total of 73 unique cases, 42 (58%) of which were reported by both systems. Following investigation, data reconciliation, and additional NNDSS reporting, 78 unique cases were identified, 63 (84%) of which were reported by both systems. Improved information-sharing between immunization programs and communicable disease surveillance units of health departments is essential to ensure more complete identification, case management, and quantification of perinatal HBV infections. Accuracy and completeness of perinatal HBV infection reporting can help ensure and measure progress toward elimination of HBV transmission in the United States.

What is already known on this topic?

In the United States, enumeration of nationally notifiable diseases occurs primarily through passive surveillance through the Nationally Notifiable Disease Surveillance System, and underreporting is common.

What is added by this report?

The existence of a National Perinatal Hepatitis B Prevention Program to support immunization programs in performing active identification of infants born to women infected by hepatitis B virus (HBV) provided an opportunity to compare the number of HBV-infected infants identified actively through the immunization programs with the number of HBV-infected infants identified passively through communicable disease surveillance. More infants were identified through active identification by the immunization programs than by passive communicable disease surveillance; however, gaps were observed in reporting by both programs and disease surveillance.

What are the implications for public health practice?

Greater coordination and communication between immunization program and communicable disease surveillance units in health departments is needed to ensure that all identified perinatal hepatitis B cases are reported and that all reported cases are followed up appropriately.

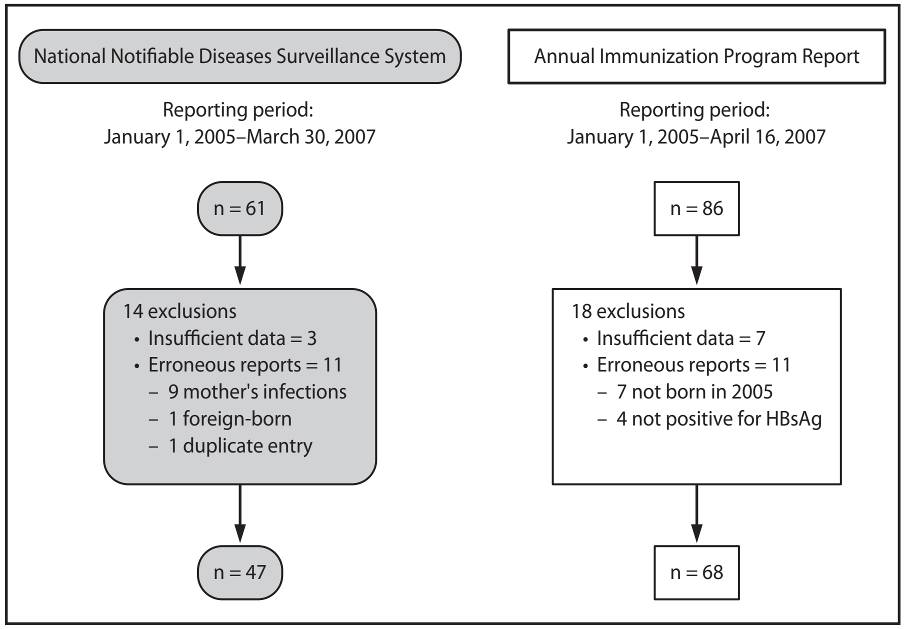
A case of perinatal HBV infection is defined as hepatitis B surface antigen (HBsAg) positivity in any infant aged 1–24 months born in the United States or its territories to an HBsAg-positive mother (*3*). Since 1995, PHBPP activities have been reported to CDC through the Annual Immunization Program Report. Since 2001, communicable disease surveillance units have reported individual perinatal HBV infection cases to CDC through NNDSS. During 2001–2004, an average of 38 perinatal HBV infection cases per year (range: 18–54) were reported through NNDSS; during the same period, an average of 90 cases per year (range: 77–102) were reported via the Annual Immunization Program Report.

To investigate this discordance, CDC reviewed all reports of perinatal HBV infections in the two systems for infants born in 2005. To identify the 2005 birth cohort, NNDSS data entries from the reporting period January 1, 2005–March 30, 2007, were compared with those reported in the Annual Immunization Program Report submitted in April 2007. Because reporting of perinatal HBV infections through the annual report is in aggregate numbers and not line-listed as it is through NNDSS, for this analysis CDC requested PHBPP coordinators to share NNDSS case numbers and demographic information on HBV-infected infants enumerated in the annual report. Cases reported through the annual report or through NNDSS were then compared using infant date of birth, NNDSS case number, sex, and race. PHBPP coordinators were informed of discrepancies and asked to work with communicable disease surveillance unit staff members responsible for NNDSS data entry to reexamine program reports and NNDSS reports of perinatal HBV infections to resolve discrepancies.

Initially, 61 perinatal HBV infection cases were identified through NNDSS, and 86 were identified through the annual report (Figure 1). Fourteen cases reported through NNDSS were excluded: 11 because of erroneous reporting (nine reports actually were maternal HBV infections and not infant HBV infections, one infant was not born in the United States, and one was a duplicate entry) and three because of insufficient data to verify the case. Eighteen cases reported through the annual report were excluded: 11 because of erroneous reporting (seven infants not born in 2005 and four not HBsAg-positive) and seven (8%) because of insufficient data to verify the case. Case matching was complicated by incorrect or missing key data elements, such as race (eight annual report cases and 16 NNDSS cases), sex (one annual report case), and date of birth (two NNDSS cases). Before case reconciliation, of the 73 unique cases reported by the two reporting systems, 42 (58%) were reported by both (Figure 2). Case reconciliation included obtaining more information on previously unverified cases, NNDSS reporting of cases originally reported only in the annual report, and 7 months of additional reporting to NNDSS. Following case reconciliation, 78 unique cases were identified across the two reporting systems, with 63 (84%) reported by both (Figure 3).

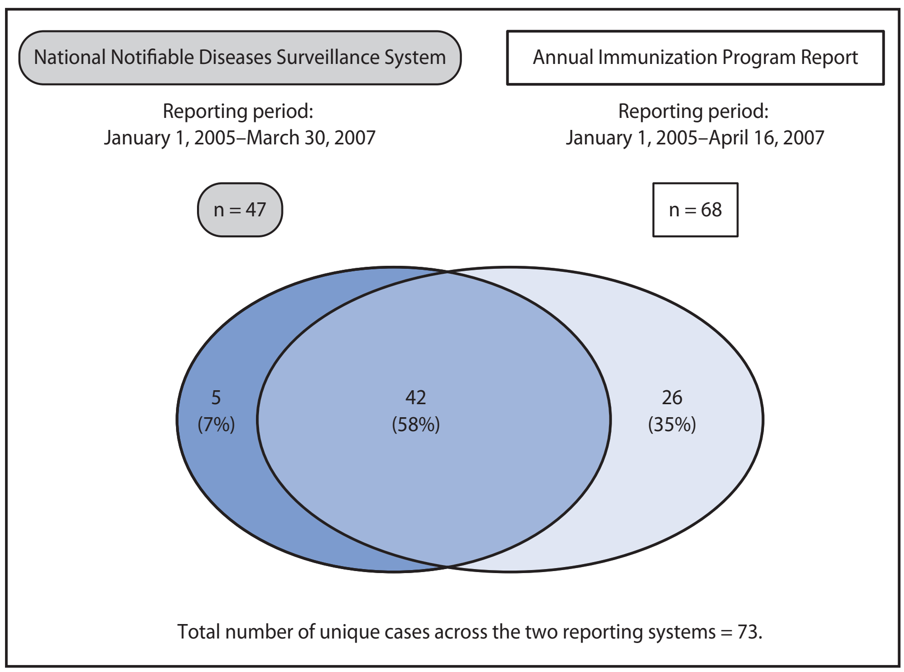
When asked to identify factors that influenced whether a case was reported by both systems, health department staff members identified good communication between PHBPP coordinators and communicable disease surveillance staff as an important determinant of case reporting. Of 37 immunization program grantees who responded, 28 (76%) indicated regular communication between persons responsible for NNDSS data entry and the PHBPP coordinator before finalizing NNDSS data; 31 (84%) indicated that the PHBPP coordinator communicated with persons responsible for NNDSS data entry before submission of the annual report. PHBPP staff members reported that some incorrect or missed reporting resulted from misunderstanding of the questions and because annual reports often were completed by a person other than the PHBPP coordinator. Incorrect NNDSS reporting included misclassifications of perinatal HBV infections as acute HBV or chronic HBV infections and misclassifications of maternal HBV infections as perinatal HBV infections.

FIGURE 1. Initial case review of perinatal hepatitis B virus infections identified through two reporting systems for infants born in the United States in 2005



Abbreviation: HBsAg = hepatitis B surface antigen.

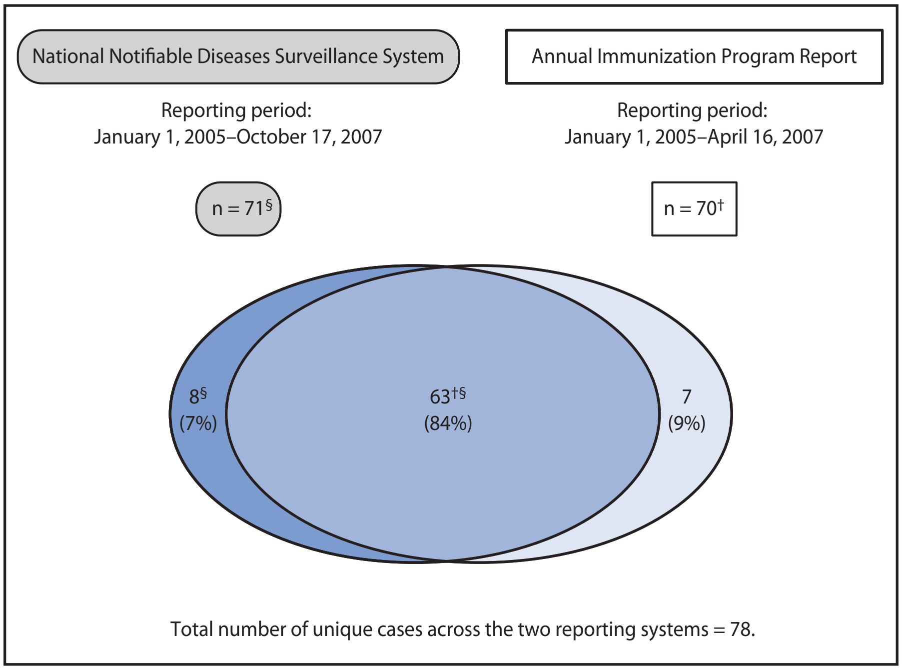
FIGURE 2. Initial matching of cases of perinatal hepatitis B virus infection identified through two reporting systems for infants born in the United States in 2005



Reported by

DM Roque, MD, Magee-Womens Hospital of Univ of Pittsburgh Medical Center, Pennsylvania. SA Wang, MD, A Wasley, ScD, Global Immunization Div; L Jacques-Carroll, MA, S Roush, MPH, CM Weinbaum, MD, Immunization Svcs Div, National Center for Immunization and Respiratory Diseases, CDC. *Corre-*

FIGURE 3. Second matching of cases of perinatal hepatitis B virus infection identified through two reporting systems for infants born in the United States in 2005, following efforts at data reconciliation and 7 months of additional reporting*



* Additional reporting through the National Notifiable Diseases Surveillance System (NNDSS) only.
† Includes two cases originally excluded from the annual report because of missing birth dates necessary to verify that the cases met the case definition; these cases subsequently were reported through NNDSS with the missing data included, allowing the cases to be matched across the two reporting systems.
§ Includes 24 additional cases reported to NNDSS in the 7 months of additional reporting. Of the 24 additional NNDSS cases, 21 matched annual report cases, and three cases were not captured in the annual report.

sponding contributor: Susan Wang, Global Immunization Div, National Center for Immunization and Respiratory Diseases, CDC, +41 22 791 1606, sjw8@cdc.gov.

Editorial Note

Comparison of immunization program and communicable disease surveillance data for reported perinatal HBV infections demonstrates a need for improved quality and completeness of both reporting systems. Some infants were reported for the wrong calendar year in the annual report, whereas case definitions were misinterpreted (e.g., maternal infections were miscoded as perinatal infections) in NNDSS. In the two reporting systems, 5%–8% of cases contained insufficient data to verify cases, and 13%–18% of cases were erroneous reports.

At the local level, communicable disease surveillance staff members should ensure that every infant with perinatal HBV infection is reported to the PHBPP coordinator, so that immunization program staff can investigate whether failure to vaccinate (i.e., gaps in clinical or program services) or vaccine failure might have resulted in the perinatal HBV infection. In turn, PHBPP coordinators should ensure that every infant with perinatal HBV infection is reported to the communicable disease surveillance staff to ensure complete and accurate NNDSS surveillance data for monitoring disease, evaluating and improving prevention efforts, and allocating resources. Establishing joint cross-check procedures between immunization program and surveillance staff members, such as ensuring that each infected infant has a surveillance identification number, will help make sure that immunization programs and surveillance units have accurate and complete descriptions of all infants with perinatal HBV infection.

Although this analysis was performed to assess complete and accurate reporting of detected perinatal HBV infections for surveillance and program activities, increased case detection also is critically needed for achieving elimination of HBV transmission in the United States (*2*). Because HBV-infected infants are typically asymptomatic, case detection requires performing HBsAg testing of at-risk infants. However, because fewer than half the estimated number of births to HBV-infected women are identified through PHBPP (*4*) and only a fraction of those infants undergo postvaccination testing (*1*), the actual number of perinatal HBV infection cases is believed to be 10 to 20 times higher than the number currently detected and reported (*1*).

Whereas adults who acquire HBV infection have a 95% likelihood of resolving the infection and only a 5% risk for developing chronic HBV infection, infants who become HBV-infected have a 90% risk for developing chronic HBV infection and a 25% lifetime risk for dying prematurely from cirrhosis or hepatocellular carcinoma (*1,2*). Thus, the key strategy to eliminate morbidity and mortality from HBV is to prevent infants from acquiring HBV infection. ACIP recommends that all newborns receive their first HepB vaccination before hospital discharge (*2*). For infants born to HBV-infected women, administering ACIP-recommended postexposure prophylaxis of HBIG and HepB within hours of birth followed by completion of the HepB series has been shown to be 85%–95% effective in preventing HBV infection (*2*).

Multiple steps are involved in the prevention and monitoring of perinatal HBV infection, including 1) identifying HBV-infected pregnant women, 2) providing newborn infants with appropriate and timely postexposure prophylaxis, 3) monitoring infants born to infected women to ensure completion of the HepB series and to ensure HBsAg testing 1–2 months after the third HepB dose, and 4) reporting of any HBV infections among infants. Eliminating perinatal HBV transmission in the United States will require closing any gaps in this process (*5*). Accurate counting of HBV-infected infants is needed to monitor progress toward elimination of perinatal HBV infection, to know whether program and vaccine are reducing that burden effectively, and to identify and address any failures in program or vaccine when an infected infant is reported.

References

1. Ward J. Time for renewed commitment to viral hepatitis prevention. Am J Public Health 2008;98:780–1.
2. CDC. A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States. Recommendations of the Advisory Committee on Immunization Practices (ACIP). Part 1: immunization of infants, children, and adolescents. MMWR 2005;54(No. RR-16).
3. CDC. Hepatitis, viral, perinatal hepatitis B virus infection acquired in the United States or U.S. territories. Atlanta, GA: US Department of Health and Human Services, CDC; 1995. Available at http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/hepatitisviralcurrent.htm. Accessed April 4, 2011.
4. Din E, Wasley A, Jacques-Carroll L, Sirotkin B, Wang S. Estimating the number of births to hepatitis B virus-infected women in 22 states, 2006. Pediatric Infect Dis J 2011; January 24, 2011 [Epub ahead of print].
5. Willis BC, Wortley P, Wang SA, Jacques-Carroll L, Zhang F. Gaps in hospital policies and practices to prevent perinatal transmission of hepatitis B virus in the United States. Pediatrics 2010;125:704–11.

Vital Signs: Teen Pregnancy — United States, 1991–2009

On April 5, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

ABSTRACT

Background: In 2009, approximately 410,000 teens aged 15–19 years gave birth in the United States, and the teen birth rate remains higher than in other developed countries.

Methods: To describe U.S. trends in teen births and related factors, CDC used data on 1) teen birth rates during 1991–2009 from the National Vital Statistics System, 2) sexual intercourse and contraceptive use among high school students during 1991–2009 from the national Youth Risk Behavior Survey, and 3) sex education, parent communication, use of long-acting reversible contraceptives (LARCs), and receipt of reproductive health services among teens aged 15–19 years from the 2006–2008 National Survey of Family Growth.

Results: In 2009, the national teen birth rate was 39.1 births per 1,000 females, a 37% decrease from 61.8 births per 1,000 females in 1991 and the lowest rate ever recorded. State-specific teen birth rates varied from 16.4 to 64.2 births per 1,000 females and were highest among southern states. Birth rates for black and Hispanic teens were 59.0 and 70.1 births per 1,000 females, respectively, compared with 25.6 for white teens. From 1991 to 2009, the percentage of high school students who ever had sexual intercourse decreased from 54% to 46%, and the percentage of students who had sexual intercourse in the past 3 months but did not use any method of contraception at last sexual intercourse decreased from 16% to 12%. From 1999 to 2009, the percentage of students who had sexual intercourse in the past 3 months and used dual methods at last sexual intercourse (condoms with either birth control pills or the injectable contraceptive Depo-Provera) increased from 5% to 9%. During 2006–2008, 65% of female teens and 53% of male teens received formal sex education that covered saying no to sex and provided information on methods of birth control. Overall, 44% of female teens and 27% of male teens had spoken with their parents about both topics, but among teens who had ever had sexual intercourse, 20% of females and 31% of males had not spoken with their parents about either topic. Only 2% of females who had sexual intercourse in the past 3 months used LARCs at last sexual intercourse.

Conclusions: Teen birth rates in the United States have declined but remain high, especially among black and Hispanic teens and in southern states. Fewer high school students are having sexual intercourse, and more sexually active students are using some method of contraception. However, many teens who have had sexual intercourse have not spoken with their parents about sex, and use of LARCs remains rare.

Implications for Public Health Practice: Teen childbearing is associated with adverse consequences for mothers and their children and imposes high public sector costs. Prevention of teen pregnancy requires evidence-based sex education, support for parents in talking with their children about pregnancy prevention and other aspects of sexual and reproductive health, and ready access to effective and affordable contraception for teens who are sexually active.

Introduction

Despite declines since 1991 (*1*), the teen birth rate in the United States remains as much as nine times higher as in other developed countries (*2*),* and significant racial/ethnic and geographic disparities exist in the United States (*3,4*). Compared with births to adult women, births to teens are at greater risk for low birth weight, preterm birth, and death in infancy (*5,6*). Teen childbearing also perpetuates a cycle of disadvantage; teen mothers are less likely to finish high school, and their children are more likely to have low school achievement, drop out of high school, and give birth themselves as teens (*7,8*). Each year, teen childbearing costs the United States approximately $6 billion in lost tax revenue and nearly $3 billion in public expenditures. However, these costs are $6.7 billion lower than they would have been had teen childbearing not decreased (*9*).

* By comparison, the U.S. teen birth rate is nearly one and a half times higher than the teen birth rate in the United Kingdom, which has the highest teen birth rate in western Europe. The U.S. rate is nearly three times higher than the teen birth rate in Canada and six to nine times higher than the teen birth rates in Denmark, the Netherlands, Sweden, and Switzerland (*2*).

This report describes trends in birth rates among U.S. teens aged 15–19 years and percentages of high school students having sexual intercourse and using contraceptives. The prevalence of four measures with the potential to reduce teen pregnancy (i.e., sex education, communication with parents, use of long-acting reversible contraceptives, and receipt of reproductive health services) (*10–14*) also are examined among never-married teens aged 15–19 years.

Methods

Data sources were natality files from the National Vital Statistics System and two nationally representative surveys: the national Youth Risk Behavior Survey (YRBS) and the National Survey of Family Growth (NSFG). U.S. natality files are compiled annually and include demographic information such as maternal age, race, and Hispanic origin for all births in the United States. This report includes preliminary national and state-specific data for 2009 (which include 99.95% of all births during that year) (*15*) and final data from 1991–2008 (*1,3,5*).

YRBS is a school-based, self-administered survey conducted by CDC using a multistage cluster sample to obtain data representative of students in grades 9–12 attending private and public schools in the United States. In this report, 1991–2009 data were used to assess the percentage of students who ever had sexual intercourse and the percentage of currently sexually active students[†] who did not use any method of contraception at last sexual intercourse. Use of selected contraceptive methods[§] at last sexual intercourse among sexually active students was assessed from 1999, the first year that use of the injectable contraceptive Depo-Provera was measured, through 2009. In addition, because research has shown that many youths do not use condoms consistently (*16*) and use of an additional birth control method is recommended (*17*), dual method use (i.e., condoms with birth control pills or Depo-Provera) was assessed. Temporal changes were analyzed overall and by sex and race/ethnicity using logistic regression analyses that simultaneously assessed linear and quadratic (e.g., leveling off or change in direction) time effects (*18*). Racial/ethnic data are presented only for black (non-Hispanic), white (non-Hispanic), and Hispanic students (of any race); the numbers of students from other racial/ethnic groups were too small for meaningful analysis.

NSFG is an in-person, household survey based on a stratified, multistage probability sample that is nationally representative of eligible women and men aged 15–44 years. For this report, 2006–2008 data were used to examine the prevalence of receiving sex education, parental communication, use of long-acting reversible contraceptives (LARCs) and receipt of reproductive health services, among never-married teens aged 15–19 years (*16,19*). LARCs were defined as intrauterine devices and contraceptive implants (Norplant and Implanon) (*14*). Receipt of reproductive health services was measured in terms of whether female teens had received a method of birth control or a prescription from a health-care provider in the preceding 12 months. This measure was evaluated because females can only obtain LARCs and other hormonal methods[¶] from a health-care provider.

Results

Teen birth rates. In 2009, approximately 410,000 births occurred among teens aged 15–19 years; the teen birth rate fell to 39.1 births per 1,000 females, a 37% decrease from 61.8 births per 1,000 females in 1991 and the lowest rate ever recorded. During that period, the birth rate decreased 50% among black teens, 41% among white teens, and 33% among Hispanic teens. In 2009, birth rates for black teens (59.0 per 1,000 females) and Hispanic teens (70.1 per 1,000 females) were more than twice that of white teens (25.6 per 1,000 females). Although birth rates were higher among black teens than Hispanic teens during 1991–1994, Hispanic teens had higher birth rates during 1995–2009 (Figure).

In 2009, birth rates were lowest in the Northeast and upper Midwest and highest among southern states. State-specific birth rates varied from 16.4 to 22.7 births per 1,000 females aged 15–19 years in states with the lowest birth rates (Connecticut, Massachusetts, New Hampshire, New Jersey and Vermont), to 59.3 to 64.2 births per 1,000 females aged 15–19 years in states with the highest birth rates (Arkansas, Mississippi, New Mexico, Oklahoma, and Texas).[**] Birth rates for white and Hispanic teens have been highest in the Southeast, whereas birth rates for black teens have been highest in the upper Midwest and Southeast (*3*).

Sexual behavior and use of contraception. In 2009, 46% of high school students reported ever having had sexual intercourse, a decrease from 54% in 1991. In 2009, for female

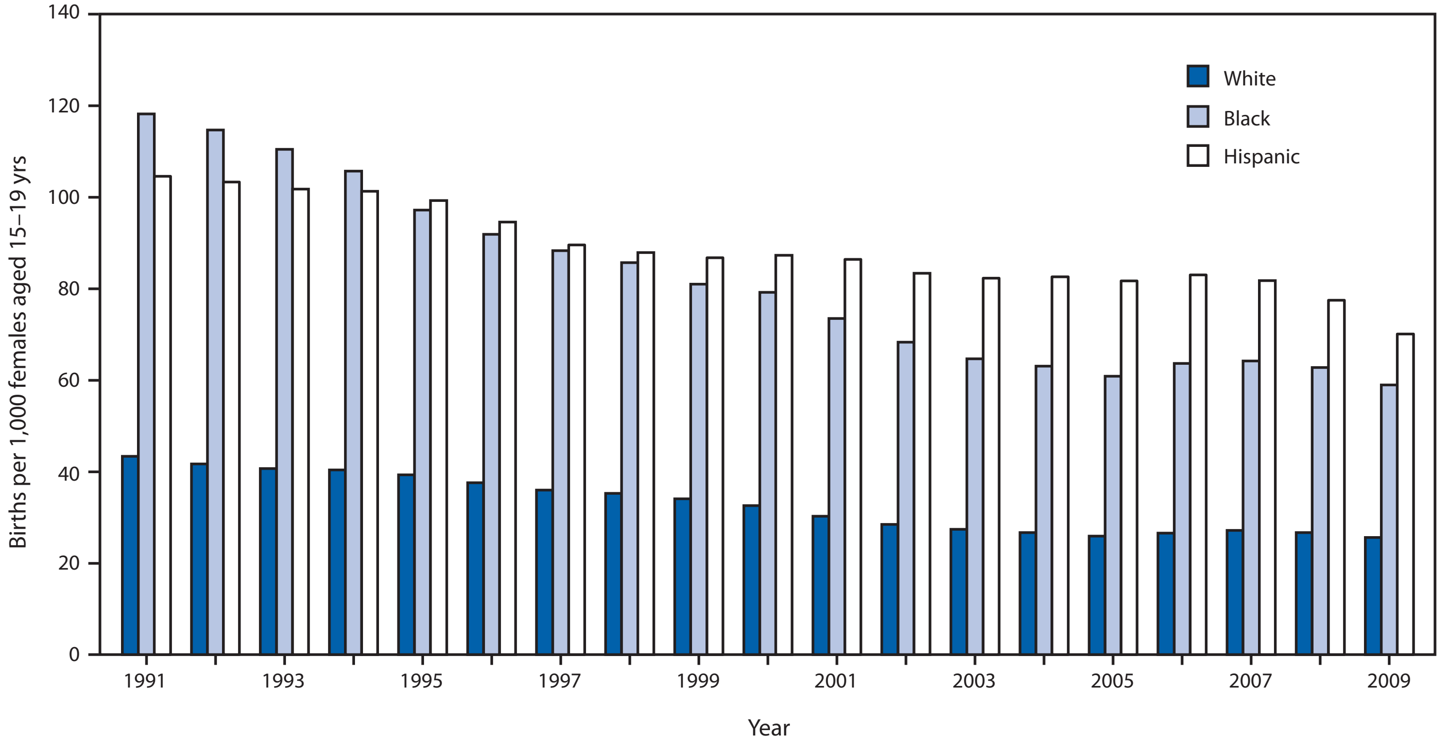
[†] Students were considered currently sexually active if they had sexual intercourse with at least one person during the 3 months before the survey.

[§] Use of the following selected contraceptive methods among sexually active students was assessed: 1) condoms but not birth control pills or Depo-Provera; 2) birth control pills or Depo-Provera but not condoms; and 3) dual methods (condoms and birth control pills or Depo-Provera). The percentage of students who used methods other than condoms, birth control pills, or Depo-Provera is not assessed in this report.

[¶] NSFG measures use of the following methods that have been classified in this report as hormonal contraceptives: birth control pills, the injectable contraceptives Depo-Provera and Lunelle, and contraceptive patches and rings. The contraceptive implants Norplant and Implanon and the intrauterine device Mirena also contain hormones but are classified in this report as LARCs.

[**] Information available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6006a6.htm?s_cid=mm6006a6_w.

FIGURE. Birth rate for teens aged 15–19 years, by race/ethnicity* — National Vital Statistics System, United States, 1991–2009



Sources: Hamilton BE, Martin JA, Ventura SJ. Births: preliminary data for 2009. Natl Vital Stat Rep 2010;59(3). Martin JA, Hamilton BE, Sutton PD, et al. Births: final data for 2008. Natl Vital Stat Rep 2010;59(1).

* Persons categorized as black or white were non-Hispanic. Persons categorized as Hispanic might be of any race.

students, the percentage who ever had sexual intercourse was highest among black students (58%) and similar among white (45%) and Hispanic students (45%). For male students, the percentage who ever had sexual intercourse was higher among black students (72%) than Hispanic (53%) and white students (40%) and higher among Hispanic than white students. During 1991–2009, the overall percentage of female and male students who ever had sexual intercourse decreased; however, this decrease did not occur among white female students, Hispanic female students, or Hispanic male students, and beginning in 2001, the decrease among black male students leveled off (Table 1).

In 2009, 12% of sexually active students did not use any method of contraception at last sexual intercourse, a decrease from 16% in 1991. In 2009, both for female and male students, the percentage who did not use any method of contraception at last sexual intercourse was higher among Hispanic students (females, 23%; males, 16%) and black students (females, 20%; males, 12%) than white students (females, 10%; males, 6%). During 1991–2009, the overall percentage of sexually active female and male students who did not use contraception at last sexual intercourse decreased. This decrease occurred for female and male students in every racial/ethnic group, but for black female students, the decrease leveled off beginning in 2005 (Table 1).

In 2009, 44% of sexually active female students and 60% of sexually active male students used condoms at last sexual intercourse. Among sexually active female students, 18% used birth control pills or Depo-Provera without condoms, and 10% used dual methods (i.e., condoms with birth control pills or Depo-Provera). Among sexually active male students, 10% did not use a condom but their partner used birth control pills or Depo-Provera, and 8% used dual methods in which they used a condom and their partner used birth control pills or Depo-Provera. During 1999–2009, condom use without birth control pills or Depo-Provera remained the most commonly used contraceptive method; the percentage of students who used dual methods (condoms with birth control pills or Depo-Provera) was low, but increased from 5% in 1999 to 9% in 2009. However, whereas this increase occurred among male and female students overall, it was only observed among white students (Table 1).

During 2006–2008, use of long-acting reversible contraceptives (LARCs) (i.e., intrauterine devices and contraceptive implants) was rare (*16*). Only 2% of sexually active females aged 15–19 years reported using one of these methods at last intercourse.

Sex education, parent communication, and receipt of services. During 2006–2008, most teens said they had received formal sex education before age 18 years that either covered saying no to sex

TABLE 1. Percentage of high school students who reported pregnancy risk behaviors and contraceptive use, by sex and race/ethnicity* — Youth Risk Behavior Survey, United States, 1991–2009

	Females							
	Race/Ethnicity							
	White		Black		Hispanic		Total	
Behavior/Year	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Ever had sexual intercourse								
1991	47.1	(42.8–51.5)	75.9	(71.4–79.9)	43.3	(40.2–46.4)	50.8	(46.7–54.9)
1993	47.4	(44.8–50.0)	70.4	(64.8–75.4)	48.3	(43.3–53.4)	50.2	(47.5–52.8)
1995	49.0	(43.3–54.8)	67.0	(60.4–73.0)	53.3	(43.7–62.7)	52.1	(46.9–57.2)
1997	44.0	(38.3–50.0)	65.6	(61.0–69.9)	45.7	(41.7–49.7)	47.7	(43.9–51.5)
1999	44.8	(40.3–49.4)	66.9	(54.5–77.4)	45.5	(39.2–51.9)	47.7	(43.5–51.9)
2001	41.3	(38.1–44.7)	53.4	(48.1–58.6)	44.0	(38.9–49.2)	42.9	(40.1–45.8)
2003	43.0	(39.8–46.3)	60.9	(56.7–64.9)	46.4	(42.7–50.1)	45.3	(42.6–48.0)
2005	43.7	(39.1–48.4)	61.2	(56.3–65.8)	44.4	(39.3–49.6)	45.7	(42.0–49.4)
2007	43.7	(40.8–46.7)	60.9	(56.2–65.4)	45.8	(41.0–50.7)	45.9	(43.1–48.6)
2009	44.7	(41.0–48.4)	58.3	(53.5–63.0)[†]	45.4	(41.6–49.4)	45.7	(43.0–48.5)[†]
Did not use any method of contraceptive[¶,]**								
1991	13.6	(11.0–16.7)	26.9	(22.9–31.3)	29.0	(22.8–36.1)	18.1	(15.7–20.7)
1993	13.7	(11.8–15.9)	22.7	(17.5–29.0)	23.1	(18.4–28.4)	16.2	(14.1–18.5)
1995	13.1	(10.9–15.8)	18.3	(15.1–22.0)	34.9	(23.8–47.9)	17.4	(14.6–20.4)
1997	12.9	(10.9–15.3)	17.8	(14.3–21.9)	30.3	(22.7–39.1)	14.9	(13.1–17.0)
1999	14.5	(11.6–17.8)	17.5	(12.0–24.8)	24.7	(19.4–30.8)	16.6	(13.8–19.9)
2001	12.7	(10.3–15.5)	15.2	(12.5–18.4)	21.8	(15.7–29.5)	14.6	(12.5–17.0)
2003	8.9	(6.8–11.4)	12.5	(9.0–17.1)	22.0	(15.5–30.1)	12.1	(10.1–14.3)
2005	11.2	(9.1–13.7)	18.7	(15.2–22.7)	24.8	(19.9–30.3)	14.5	(12.8–16.5)
2007	10.8	(7.9–14.5)	15.3	(11.6–19.8)	23.8	(18.7–29.7)	14.0	(11.8–16.5)
2009	9.6	(7.4–12.3)[†]	20.4	(17.0–24.2)[†,§]	22.8	(18.9–27.2)[†]	13.9	(12.1–15.9)[†]
Used condoms[††]								
1999	39.8	(32.8–47.2)	60.0	(52.1–67.3)	40.5	(32.9–48.5)	44.1	(37.9–50.5)
2001	41.5	(37.3–45.8)	55.9	(49.9–61.7)	42.9	(36.9–49.0)	43.4	(40.0–46.9)
2003	46.9	(43.3–50.5)	55.9	(50.7–61.1)	47.0	(38.7–55.5)	48.9	(45.7–52.0)
2005	44.6	(41.0–48.1)	54.5	(49.4–59.5)	45.5	(41.1–50.0)	46.9	(43.8–49.9)
2007	44.3	(39.5–49.3)	53.5	(47.1–59.9)	49.4	(42.7–56.2)	47.4	(44.3–50.5)
2009	42.5	(38.7–46.5)	45.1	(41.2–49.0)[†]	44.9	(40.3–49.7)	43.6	(40.9–46.4)[§]
Used birth control pills or Depo-Provera[§§]								
1999	23.6	(19.5–28.1)	11.7	(7.6–17.5)	12.1	(7.1–19.9)	19.4	(16.5–22.6)
2001	23.6	(21.0–26.4)	9.8	(6.5–14.4)	9.3	(6.8–12.6)	19.3	(17.2–21.6)
2003	21.7	(18.3–25.5)	14.1	(10.5–18.5)	10.7	(7.4–15.2)	17.7	(14.9–21.0)
2005	20.3	(16.1–25.3)	10.3	(7.6–13.8)	8.5	(5.8–12.2)	16.3	(13.4–19.5)
2007	19.5	(16.2–23.2)	12.3	(8.5–17.4)	8.2	(5.4–12.0)	15.8	(13.5–18.5)
2009	21.5	(18.0–25.4)	12.7	(10.1–15.8)	11.7	(8.9–15.2)	17.6	(15.0–20.5)
Used dual methods[¶¶]								
1999	7.4	(5.4–10.1)	4.4	(2.5–7.3)	2.3	(1.1–4.8)	6.0	(4.6–7.8)
2001	8.9	(6.9–11.3)	4.9	(2.9–8.2)	4.3	(2.4–7.5)	7.5	(6.3–8.9)
2003	9.1	(7.0–11.7)	7.1	(4.9–10.3)	4.9	(2.4–9.6)	8.0	(6.2–10.2)
2005	10.4	(8.7–12.3)	6.9	(4.4–10.5)	3.7	(2.0–6.7)	8.5	(7.1–10.0)
2007	9.5	(7.6–11.7)	6.5	(4.4–9.3)	2.8	(1.5–4.9)	7.5	(6.3–8.8)
2009	13.1	(10.1–16.8)[†]	5.6	(3.4–9.2)	3.2	(1.8–5.4)	9.9	(7.9–12.1)[†]

See table footnotes on page 5.

(females, 87%; males, 81%) or provided information on methods of birth control (females, 70%; males, 62%); 65% of females and 53% of males received education on both topics (Table 2). Among teens who had ever had sexual intercourse, 5% of females and 13% of males had received no formal education on either topic.

Approximately half of all teens had spoken with their parents either about how to say no to sex or about methods of birth control[††] (Table 2). Fewer teens (females, 44%; males, 27%) had spoken with their parents about both topics, and 24% of females and 38% of males had not spoken with their parents about either topic. The percentage of teens who spoke with their parents about methods of birth control was higher among those who had ever had sexual intercourse (females, 70%; males, 64%) than among those who had not (females, 48%; males 35%) (Table 2). However, among those who had ever had sexual intercourse, 20% of females and 31% of males had never spoken with their parents either about how to say no to sex or about methods of birth control.

Among sexually active females, during 2006–2008, 55% (95% confidence interval [CI] = 48%–63%) either had received a method of birth control or a prescription from a health-care provider in the preceding 12 months; this percentage was higher

[††] Includes communicating with parents about contraception, methods of birth control, where to get birth control, or how to use a condom.

TABLE 1. (*Continued*) Percentage of high school students who reported pregnancy risk behaviors and contraceptive use, by sex and race/ethnicity* — Youth Risk Behavior Survey, United States, 1991–2009

	Males								Combined total for males and females	
	Race/Ethnicity									
	White		Black		Hispanic		Total			
Behavior/Year	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Ever had sexual intercourse										
1991	52.7	(48.9–56.6)	88.1	(83.7–91.4)	64.1	(57.8–70.0)	**57.4**	**(53.1–61.5)**	**54.1**	**(50.5–57.8)**
1993	49.3	(45.3–53.4)	89.2	(86.5–91.4)	63.5	(59.2–67.7)	**55.6**	**(52.0–59.2)**	**53.0**	**(50.2–55.8)**
1995	48.9	(43.1–54.7)	81.0	(75.0–85.8)	62.0	(52.2–71.0)	**54.0**	**(49.0–58.8)**	**53.1**	**(48.4–57.7)**
1997	43.3	(39.4–47.3)	80.3	(77.3–83.0)	57.7	(51.2–63.9)	**48.9**	**(45.4–52.3)**	**48.4**	**(45.2–51.6)**
1999	45.5	(41.2–49.8)	75.7	(68.6–81.7)	62.9	(57.5–68.0)	**52.2**	**(48.0–56.2)**	**49.9**	**(46.1–53.7)**
2001	45.1	(42.4–47.9)	68.8	(59.6–76.8)	53.0	(48.0–58.0)	**48.5**	**(45.8–51.3)**	**45.6**	**(43.2–48.1)**
2003	40.5	(36.9–44.2)	73.8	(70.0–77.3)	56.8	(52.4–61.2)	**48.0**	**(44.6–51.4)**	**46.7**	**(44.0–49.4)**
2005	42.2	(37.8–46.8)	74.6	(70.6–78.2)	57.6	(53.1–62.1)	**47.9**	**(44.4–51.5)**	**46.8**	**(43.4–50.2)**
2007	43.6	(39.7–47.6)	72.6	(68.5–76.3)	58.2	(54.0–62.4)	**49.8**	**(46.7–52.9)**	**47.8**	**(45.1–50.6)**
2009	39.6	(33.9–45.6)†	72.1	(67.8–76.1)†,§	52.8	(49.2–56.4)	**46.1**	**(41.5–50.9)†**	**46.0**	**(42.9–49.2)†**
Did not use any method of contraceptive¶,**										
1991	11.6	(8.7–15.3)	21.0	(15.3–28.1)	22.7	(15.9–31.3)	**15.0**	**(12.2–18.3)**	**16.5**	**(14.6–18.6)**
1993	13.2	(10.8–16.2)	13.0	(10.0–16.7)	22.6	(16.8–29.8)	**14.3**	**(12.4–16.3)**	**15.3**	**(13.7–17.0)**
1995	13.6	(9.4–19.2)	10.8	(6.9–16.4)	23.9	(17.9–31.2)	**14.2**	**(11.6–17.1)**	**15.8**	**(13.6–18.2)**
1997	14.2	(10.9–18.2)	15.6	(11.8–20.3)	24.1	(18.2–31.3)	**15.3**	**(12.9–18.0)**	**15.2**	**(13.5–17.1)**
1999	12.0	(8.8–16.2)	14.5	(10.1–20.3)	17.7	(13.6–22.8)	**13.2**	**(11.0–15.8)**	**14.9**	**(13.2–16.8)**
2001	9.7	(7.9–11.7)	13.8	(10.6–17.7)	16.7	(11.5–23.8)	**11.9**	**(10.1–13.9)**	**13.3**	**(11.7–15.0)**
2003	6.4	(4.5–8.9)	9.6	(7.4–12.4)	19.2	(14.2–25.4)	**10.5**	**(8.9–12.3)**	**11.3**	**(9.9–13.0)**
2005	8.9	(7.0–11.2)	10.1	(7.5–13.5)	16.4	(11.8–22.4)	**10.9**	**(9.1–12.9)**	**12.7**	**(11.4–14.3)**
2007	7.7	(5.6–10.5)	10.0	(7.3–13.6)	15.7	(12.0–20.3)	**10.3**	**(8.8–12.0)**	**12.2**	**(10.8–13.7)**
2009	6.4	(4.7–8.7)†	12.3	(9.0–16.8)†	16.2	(13.5–19.3)†	**9.7**	**(8.3–11.4)†**	**11.9**	**(10.7–13.2)†**
Used condoms††										
1999	58.7	(53.8–63.4)	72.4	(66.6–77.5)	62.3	(51.8–71.7)	**61.3**	**(56.6–65.8)**	**52.5**	**(48.0–57.0)**
2001	54.3	(50.7–57.8)	69.0	(63.5–73.9)	55.8	(49.9–61.5)	**57.6**	**(55.1–60.1)**	**50.2**	**(47.9–52.4)**
2003	62.7	(58.6–66.6)	78.2	(72.8–82.7)	58.2	(53.0–63.3)	**63.4**	**(60.9–65.9)**	**56.0**	**(53.5–58.4)**
2005	61.3	(56.3–66.1)	72.6	(66.6–77.9)	62.4	(53.8–70.2)	**63.1**	**(59.3–66.9)**	**54.8**	**(52.2–57.4)**
2007	61.0	(56.2–65.5)	70.3	(65.8–74.5)	66.5	(62.3–70.4)	**63.8**	**(60.6–66.9)**	**55.4**	**(53.3–57.5)**
2009	59.7	(56.3–63.0)	68.4	(62.1–74.2)	57.9	(53.8–61.8)	**60.3**	**(57.4–63.0)**	**51.7**	**(49.3–54.1)§**
Used birth control pills or Depo-Provera§§										
1999	13.2	(8.5–19.8)	2.8	(1.4–5.5)	4.5	(2.5–7.9)	**10.0**	**(6.2–15.5)**	**14.8**	**(11.8–18.3)**
2001	13.8	(11.7–16.3)	5.4	(3.5–8.3)	7.5	(4.1–13.2)	**10.8**	**(9.2–12.6)**	**15.3**	**(13.9–16.8)**
2003	13.7	(11.5–16.3)	2.4	(1.4–4.3)	9.5	(6.0–14.6)	**10.2**	**(8.6–12.1)**	**14.0**	**(12.1–16.1)**
2005	10.8	(8.4–13.8)	7.7	(4.5–12.6)	8.3	(5.2–13.1)	**9.8**	**(8.0–11.9)**	**13.1**	**(11.0–15.4)**
2007	12.7	(10.2–15.6)	4.4	(2.7–7.0)	5.6	(3.9–8.0)	**9.4**	**(7.5–11.6)**	**12.7**	**(11.0–14.6)**
2009	12.8	(10.6–15.4)	4.2	(2.4–7.4)	9.4	(7.0–12.5)	**10.5**	**(8.7–12.6)**	**14.1**	**(12.3–16.2)**
Used dual methods¶¶										
1999	4.0	(2.9–5.4)	2.3	(1.0–5.0)	3.5	(1.5–7.6)	**3.4**	**(2.6–4.5)**	**4.8**	**(3.8–6.0)**
2001	9.0	(6.9–11.6)	3.4	(2.0–5.8)	3.4	(1.5–7.1)	**7.0**	**(5.7–8.6)**	**7.2**	**(6.5–8.1)**
2003	6.5	(5.0–8.5)	3.2	(2.2–4.8)	4.2	(1.8–9.6)	**5.5**	**(4.1–7.2)**	**6.8**	**(5.6–8.4)**
2005	8.5	(6.2–11.4)	3.5	(1.9–6.6)	2.3	(1.1–4.5)	**6.6**	**(5.1–8.4)**	**7.5**	**(6.4–8.8)**
2007	5.4	(3.9–7.3)	3.4	(1.6–6.9)	3.6	(2.3–5.5)	**4.6**	**(3.6–5.9)**	**6.9**	**(5.1–7.1)**
2009	10.7	(8.3–13.6)†	3.6	(1.9–6.6)	3.9	(2.4–6.0)	**7.8**	**(6.4–9.5)†**	**8.9**	**(7.6–10.3)†**

Abbreviation: CI = confidence interval.

* Students categorized as black or white were non-Hispanic. Students categorized as Hispanic might be of any race. Other racial/ethnic populations were too small for meaningful analysis.

† Significant linear effect.

§ Significant quadratic effect.

¶ At last intercourse among students who had sexual intercourse with at least one person during the 3 months before the survey.

** The percentages of sexually active students who did not use any method of contraception and the percentages who used selected contraceptive methods do not add to 100% because the percentage of students who used methods other than condoms, birth control pills, or Depo-Provera is not assessed in this report.

†† Without birth control pills or the injectable contraceptive, Depo-Provera, at last sexual intercourse among students who had sexual intercourse with at least one person during the 3 months before the survey.

§§ Without condoms, at last sexual intercourse among students who had sexual intercourse with at least one person during the 3 months before the survey.

¶¶ Condoms with birth control pills or the injectable contraceptive, Depo-Provera, at last sexual intercourse among students who had sexual intercourse with at least one person during the 3 months before the survey.

among sexually active teens who had spoken with their parents about birth control (64%; CI = 55%–71%) compared with those who had not (37%; CI = 26%–50%). Among those sexually active females who had received a method of birth control or a prescription from a health-care provider in the preceding 12 months, 56% (CI = 47%–64%) reported using a hormonal method (i.e., birth control pills, injectable contraceptives, contraceptive patches and rings), or a LARC (i.e., contraceptive implants and intrauterine devices) at last sexual intercourse.

TABLE 2. Percentage of never-married teens aged 15–19 years who received formal sex education or talked to their parents about sex, by sexual intercourse status — National Survey of Family Growth, 2006–2008

Education/Parental communication	Females						Males					
	Ever had sexual intercourse		Never had sexual intercourse		Total		Ever had sexual intercourse		Never had sexual intercourse		Total	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Received formal sex education before age 18 years on												
How to say no to sex	88.6	(83.7–92.2)	86.3	(81.6–89.9)	**87.2**	**(83.4–90.3)**	76.4	(70.5–81.4)	84.6	(80.3–88.1)	**81.1**	**(78.1–83.7)**
Methods of birth control	78.3	(74.4–81.8)	62.9	(56.2–69.2)	**69.5**	**(65.0–73.6)**	64.8	(58.8–70.4)	59.7	(54.2–64.9)	**61.9**	**(57.6–66.0)**
Both topics	71.8	(67.1–76.1)	59.3	(52.7–65.6)	**64.6**	**(60.2–68.8)**	54.1	(48.4–59.7)	52.9	(48.0–57.7)	**53.4**	**(49.6–57.1)**
Neither topic	4.9	(3.3–7.3)	10.1	(7.1–14.2)	**7.9**	**(5.9–10.5)**	12.9	(8.9–18.2)	8.6	(6.1–12.0)	**10.5**	**(8.3–13.1)**
Ever spoke to a parent or guardian about												
How to say no to sex	59.0	(52.3–65.4)	65.3	(60.5–69.9)	**62.7**	**(58.3–66.8)**	40.3	(34.1–46.8)	43.0	(37.5–48.8)	**41.9**	**(37.2–46.6)**
Methods of birth control*	70.2	(63.5–76.1)	47.9	(43.2–52.5)	**57.3**	**(52.9–61.7)**	64.2	(58.5–69.5)	35.2	(30.4–40.4)	**47.7**	**(43.6–51.8)**
Both topics	49.6	(42.9–56.2)	39.7	(35.1–44.5)	**43.9**	**(39.7–48.1)**	35.4	(29.3–42.0)	21.3	(17.0–26.5)	**27.4**	**(23.2–32.1)**
Neither topic	20.4	(15.5–26.3)	26.5	(22.2–31.2)	**23.9**	**(20.4–27.8)**	31.0	(26.2–36.2)	43.1	(38.3–48.0)	**37.8**	**(34.1–41.7)**

Abbreviation: CI = confidence interval.
* Includes talking with parents about methods of birth control, where to get birth control, or how to use a condom.

Conclusions and Comment

The teen birth rate in the United States declined during 1991–2009 to its lowest level in the nearly 70 years these data have been collected (*1*). Nonetheless, in 2009, approximately 410,000, or 4% of all female teens aged 15–19 years, gave birth in the United States, and the teen birth rate remains nearly three to four times higher in those states with the highest birth rates (>59 births per 1,000 females), compared with those states with the lowest rates (<23 births per 1,000 females). Moreover, the teen birth rate in the United States remains six to nine times higher than in developed countries with the lowest birth rates. Even in U.S. states with the lowest rates, the teen birth rate is nearly three to five times higher than in developed countries with the lowest birth rates, and in U.S. states with the highest rates, the teen birth rate is approximately 10 to 15 times higher than in other developed countries with the lowest birth rates (*2*).

Paralleling the decline in births to teens aged 15–19 years during 1991–2009, the percentage of high school students who had ever had sexual intercourse and the percentage of sexually active students who did not use any method of contraception at last sexual intercourse both decreased. However, these decreases were not consistently observed across all race/ethnicity groups. Moreover, among sexually active high school students, use of hormonal methods (i.e., birth control pills or the injectable contraceptive Depo-Provera), alone or in combination with condoms, remains low. Among teens aged 15–19 years, use of LARCs (i.e., intrauterine devices and contraceptive implants), remains rare. Unlike condoms, use of these methods is limited in part because they must be obtained from a health-care provider; the findings in this report suggest that only half of sexually active females receive birth control methods from a health-care provider. Although approximately 98% of health-care providers offer birth control pills and the injectable contraceptive Depo-Provera on site or through prescription, the need to be referred to another doctor might impede the use of intrauterine devices and contraceptive implants (*20*). In addition, teens who receive these methods do not always use them; the findings in this report suggest that only half of sexually active females who received a method of birth control from a health-care provider used a LARC or another hormonal method at last intercourse.

Numerous sex education programs have been shown to be effective in delaying sexual initiation or increasing contraceptive use (*10*). Research also has shown that parent-child communication can delay sexual initiation and reduce sexual risk behaviors (*11–13*). Nonetheless, consistent with other recent publications (*19*), this report suggests many teens do not receive formal sex education that covers both abstinence and contraception, and many teens do not talk with their parents about ways to prevent pregnancy.

The findings in this report are subject to at least five limitations. First, natality data are based on births, not pregnancies, and therefore exclude pregnancies that do not result in live birth. Second, estimates of sexual risk and protective behaviors (i.e., contraceptive use) are self-reported; the extent of underreporting or overreporting cannot be determined and can vary by sex (e.g., males might be unaware of the contraceptive methods their partners are using). Nonetheless, survey questions demonstrate good test-retest reliability (*21*). Third, the findings obtained through YRBS are applicable only to youths who attend school and are not representative of out-of-school teens who might have a higher prevalence of health risk behaviors (*22*). Fourth, although surveys indicate the majority of teen births are unintended (*23*), distinguishing unintended from intended births is not possible using data from the National Vital Statistics System. Finally, this report does not address births to females aged <15 years. In 2009, approximately 5,000

Key Points

- Although the U.S. teen birth rate has declined to the lowest level ever recorded, approximately 410,000, or 4% of all female teens aged 15–19 years, gave birth in 2009.
- Teen childbearing costs the United States about $9 billion annually.
- Among high school students, 46% have had sexual intercourse. Among sexually active students, 12% did not use any method of contraception at last sexual intercourse.
- Approximately half of U.S. teens have talked with their parents about how to say no to sex, or about methods of birth control.
- Teens need sex education, the opportunity to talk with their parents about pregnancy prevention and other aspects of sexual and reproductive health, and those who become sexually active need access to affordable, effective birth control.
- Additional information is available at http://www.cdc.gov/vitalsigns.

females aged 10–14 years gave birth; although this is the lowest number reported in more than 60 years (*1*), births in this age group are of particular concern.

Programs for preventing teen pregnancy should be broad-based and multifaceted. The programs should provide evidence-based sex education, support parental efforts to talk with their children about pregnancy prevention and other aspects of sexual and reproductive health, and ensure that sexually active teens have ready access to contraception that is effective and affordable.

Reported by

K Pazol, PhD, L Warner, PhD, L Gavin, PhD, WM Callaghan, MD, AM Spitz, MS, MPH, JE Anderson, PhD, WD Barfield, MD, Div of Reproductive Health; L Kann, PhD, Div of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Acknowledgments

This report is based, in part, on contributions by C Lesesne, PhD, L House, PhD, Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion; and GM Martinez, PhD, and SJ Ventura, MA, Div of Vital Statistics, National Center for Health Statistics, CDC.

References

1. Ventura SJ, Hamilton BE. U. S. teenage birth rate resumes decline. NCHS data brief no. 58. Hyattsville, MD: US Department of Health and Human Services, CDC; 2011.
2. United Nations. 2008 Demographic Yearbook. New York, NY: United Nations; 2010.
3. Mathews TJ, Sutton PD, Hamilton BE, Ventura SJ. State disparities in teenage birth rates in the United States. NCHS data brief, no. 46. Hyattsville, MD: US Department of Health and Human Services, CDC; 2010.
4. CDC. CDC health disparities and inequalities report— United States, 2011: adolescent pregnancy and childbirth—United States, 1991–2008. MMWR 2011;60 (Suppl):105–8.
5. Martin JA, Hamilton BE, Sutton PD, et al. Births: final data for 2008. Natl Vital Stat Rep 2010;59(1).
6. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2006 period linked birth/infant death data set. Natl Vital Stat Rep 2010; 58(17).
7. Manlove J, Terry-Humen E, Mincieli L, Moore K. Outcomes for children of teen mothers from kindergarten through adolescence In: Hoffman S, Maynard R, eds. Kids having kids: economic costs and social consequences of teen pregnancy. Washington, DC: The Urban Institute Press; 2008.
8. Perper K, Peterson K, Manlove J. Child trends fact sheet: diploma attainment among teen mothers. Washington, D.C.: Child Trends; 2010. Available at http://www.childtrends.org/files//child_trends-2010_01_22_fs_diplomaattainment.pdf. Accessed March 15, 2011.
9. Hoffman S. By the numbers: the public costs of teen childrearing. Washington, DC: The National Campaign to Prevent Teen Pregnancy; 2006. Available at http://www.thenationalcampaign.org/resources/pdf/pubs/btn_full.pdf; 2006. Accessed March 15, 2011.
10. Oringanje C, Meremikwu MM, Eko H, Esu E, Meremikwu A, Ehiri JE. Interventions for preventing unintended pregnancies among adolescents. Cochrane Database Syst Rev 2009:CD005215.
11. Brody GH, Murry VM, Gerrard M, et al. The strong African American families program: prevention of youths' high-risk behavior and a test of a model of change. J Fam Psychol 2006;20:1–11.
12. Haggerty KP, Skinner ML, MacKenzie EP, Catalano RF. A randomized trial of Parents Who Care: effects on key outcomes at 24-month follow-up. Prev Sci 2007;8:249–60.
13. Prado G, Pantin H, Briones E, et al. A randomized controlled trial of a parent-centered intervention in preventing substance use and HIV risk behaviors in Hispanic adolescents. J Consult Clin Psychol 2007;75:914–26.
14. Epsey E, Ogburn T. Long-acting reversible contraceptives: intrauterine devices and the contraceptive implant. Obstet & Gynecol 2011;117:705–18.
15. Hamilton BE, Martin JA, Ventura SJ. Births: preliminary data for 2009. Natl Vital Stat Rep 2010;59(3).
16. Abma J, Martinez G, Copen C. Teenagers in the United States: sexual activity, contraceptive use, and childbearing. National Survey of Family Growth 2006–2008. Vital Health Stat 2010;23(30).
17. World Health Organization Department of Reproductive Health and Research, Johns Hopkins Bloomberg School of Public Health. Family planning: a global handbook for providers. Baltimore MD: Johns Hopkins; 1997. Geneva, Switzerland: World Health Organization; 2007.
18. CDC. Methodology of the Youth Risk Behavior Surveillance System. MMWR 2004;53(No. RR-12).
19. Martinez G, Abma J, Copen C. Educating teenagers about sex in the United States. NCHS data brief no. 44. Hyattsville, MD: US Department of Health and Human Services, CDC; 2010.
20. CDC. Contraceptive methods available to patients of office-based physicians and Title X clinics—United States, 2009–2010. MMWR 2011;60:1–4.
21. Brener ND, Kann L, McManus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 youth risk behavior survey questionnaire. J Adolesc Health 2002;31:336–42.
22. CDC. Health risk behaviors among adolescents who do and do not attend school—United States, 1992. MMWR 1994;43:129–32.
23. Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. Perspect Sex Reprod Health 2006;38:90–6.

Notes from the Field

Measles Outbreak — Hennepin County, Minnesota, February–March 2011

On March 2, 2011, the Minnesota Department of Health (MDH) confirmed measles in a Hennepin County resident aged 9 months. As of April 1, investigation of contacts and heightened surveillance had revealed a total of 13 epidemiologically linked cases in Hennepin County residents. Of those cases, 11 were laboratory confirmed, and two were in household contacts of confirmed cases and met the clinical case definition for measles.

The patients included children aged 4 months–4 years and one adult aged 51 years; seven of the 13 were of Somali decent. Eight patients were hospitalized. Vaccination status was known for 11 patients: five were too young to have been vaccinated, and six (all of Somali descent) had not been vaccinated because of parental concerns about the safety of the measles, mumps, and rubella (MMR) vaccine. The most recent rash onset was March 28. An additional, unrelated case of measles was confirmed in a Hennepin County resident aged 34 years who was exposed in Orlando, Florida, sometime during March 1–10.

The investigation determined that the index patient was a U.S.-born child of Somali descent, aged 30 months, who developed a rash February 15, 14 days after returning from a trip to Kenya. The patient attended a drop-in child care center 1 day before rash onset; measles developed in three contacts at the center and in one household contact. Secondary and tertiary exposures occurred in two congregate living facilities for homeless persons (four patients), an emergency department (two patients), and households (two patients). A virus isolate from the index patient was genotyped at CDC as B3, which is endemic in sub-Saharan Africa.

Outbreak control efforts have included following up with potentially exposed persons, providing immune globulin to persons without evidence of immunity, and recommending that persons without evidence of immunity who have been exposed to measles not leave their residence while potentially infectious (21 days). Multiple vaccination clinics have been held or scheduled at community venues and in the congregate living facilities.

In the United States, MMR vaccine normally is given as a 2-dose series, with the first dose at age 12–15 months and a second dose at age 4–6 years.* However, this series may be accelerated during outbreaks. In response to the current outbreak, MDH has recommended that children aged 6–11 months living in selected congregate living facilities receive a dose of MMR vaccine,† and that older children and adults in these facilities receive vaccine if they are susceptible and have had less than 2 doses of MMR vaccine. MDH also has recommended an accelerated vaccination schedule (a total of 2 doses of MMR vaccine separated by at least 28 days) for all children aged ≥12 months living in Hennepin County and all children of Somali descent living in the wider Minneapolis-St. Paul metropolitan area.

Measles was declared eliminated from the United States in 2000. However, importations of measles from other countries still occur, and low vaccination coverage associated with parental concerns regarding the MMR vaccine puts persons and communities at risk for measles. Public health and health-care providers should work with parents and community leaders to address concerns about the MMR vaccine to ensure high vaccination coverage and prevent measles.

* Additional information available at http://www.cdc.gov/vaccines/recs/schedules/downloads/child/mmwr-child-schedule.pdf.

† Because serologic response to the measles vaccine is variable among infants aged 6–11 months, infants vaccinated before age 12 months should be revaccinated on or after the first birthday with 1 dose of MMR vaccine followed by a second at least 28 days later.

Reported by

Hennepin County Public Health, Hopkins and Minneapolis; Minneapolis Dept of Health; Minnesota Dept of Health, St. Paul, Minnesota. Div of Viral Diseases, National Center for Immunization and Respiratory Diseases, CDC. Corresponding contributor: Ruth Lynfield, MD, Minnesota Dept of Health, 651-201-5414, ruth.lynfield@state.mn.us.

Notifiable Diseases and Mortality Tables

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending April 2, 2011 (13th week)*

Disease	Current week	Cum 2011	5-year weekly average†	Total cases reported for previous years 2010	2009	2008	2007	2006	States reporting cases during current week (No.)
Anthrax	—	—	—	—	1	—	1	1	
Arboviral diseases§, ¶:									
California serogroup virus disease	—	—	0	74	55	62	55	67	
Eastern equine encephalitis virus disease	—	—	—	10	4	4	4	8	
Powassan virus disease	—	—	0	8	6	2	7	1	
St. Louis encephalitis virus disease	—	—	0	10	12	13	9	10	
Western equine encephalitis virus disease	—	—	—	—	—	—	—	—	
Babesiosis	—	6	1	NN	NN	NN	NN	NN	
Botulism, total	—	17	2	111	118	145	144	165	
foodborne	—	2	0	7	10	17	32	20	
infant	—	12	2	79	83	109	85	97	
other (wound and unspecified)	—	3	0	25	25	19	27	48	
Brucellosis	—	9	2	129	115	80	131	121	
Chancroid	—	5	1	31	28	25	23	33	
Cholera	—	11	0	12	10	5	7	9	
Cyclosporiasis§	1	26	1	173	141	139	93	137	FL (1)
Diphtheria	—	—	—	—	—	—	—	—	
Haemophilus influenzae,** invasive disease (age <5 yrs):									
serotype b	—	1	1	23	35	30	22	29	
nonserotype b	—	21	5	186	236	244	199	175	
unknown serotype	3	75	4	233	178	163	180	179	FL (3)
Hansen disease§	—	14	1	69	103	80	101	66	
Hantavirus pulmonary syndrome§	—	4	0	18	20	18	32	40	
Hemolytic uremic syndrome, postdiarrheal§	1	14	3	240	242	330	292	288	TX (1)
Influenza-associated pediatric mortality§,††	2	87	3	61	358	90	77	43	MA (1), SD (1)
Listeriosis	3	91	11	776	851	759	808	884	IN (1), WA (1), CA (1)
Measles§§	1	39	3	61	71	140	43	55	CA (1)
Meningococcal disease, invasive¶¶:									
A, C, Y, and W-135	1	43	9	262	301	330	325	318	NC (1)
serogroup B	1	27	4	122	174	188	167	193	OK (1)
other serogroup	—	1	1	10	23	38	35	32	
unknown serogroup	5	127	15	406	482	616	550	651	OH (1), MO (1), FL (2), AR (1)
Novel influenza A virus infections***	—	1	0	4	43,774	2	4	NN	
Plague	—	1	—	2	8	3	7	17	
Poliomyelitis, paralytic	—	—	—	—	1	—	—	—	
Polio virus Infection, nonparalytic§	—	—	—	—	—	—	—	NN	
Psittacosis§	—	1	0	4	9	8	12	21	
Q fever, total§	—	13	2	120	113	120	171	169	
acute	—	6	1	97	93	106	—	—	
chronic	—	7	0	23	20	14	—	—	
Rabies, human	—	—	0	1	4	2	1	3	
Rubella†††	—	1	0	6	3	16	12	11	
Rubella, congenital syndrome	—	—	0	—	2	—	—	1	
SARS-CoV§	—	—	—	—	—	—	—	—	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	1	35	5	173	161	157	132	125	OH (1)
Syphilis, congenital (age <1 yr)§§§	—	32	8	296	423	431	430	349	
Tetanus	—	—	0	11	18	19	28	41	
Toxic-shock syndrome (staphylococcal)§	—	18	2	77	74	71	92	101	
Trichinellosis	—	4	0	6	13	39	5	15	
Tularemia	—	3	0	114	93	123	137	95	
Typhoid fever	4	73	6	444	397	449	434	353	MA (2), NY (1), WA (1)
Vancomycin-intermediate *Staphylococcus aureus*§	2	15	1	100	78	63	37	6	NY (2)
Vancomycin-resistant *Staphylococcus aureus*§	—	—	0	1	1	—	2	1	
Vibriosis (noncholera *Vibrio* species infections)§	1	41	4	803	789	588	549	NN	FL (1)
Viral hemorrhagic fever¶¶¶	—	—	—	1	NN	NN	NN	NN	
Yellow fever	—	—	—	—	—	—	—	—	

See Table 1 footnotes on next page.

TABLE I. (*Continued*) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending April 2, 2011 (13th week)*

—: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts.

* Case counts for reporting years 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf.

† Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/5yearweeklyaverage.pdf.

§ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table except starting in 2007 for the arboviral diseases, STD data, TB data, and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm.

¶ Includes both neuroinvasive and nonneuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for West Nile virus are available in Table II.

** Data for H. influenzae (all ages, all serotypes) are available in Table II.

†† Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. Since October 3, 2010, 91 influenza-associated pediatric deaths occurring during the 2010-11 influenza season have been reported.

§§ The one measles case reported for the current week was indigenous.

¶¶ Data for meningococcal disease (all serogroups) are available in Table II.

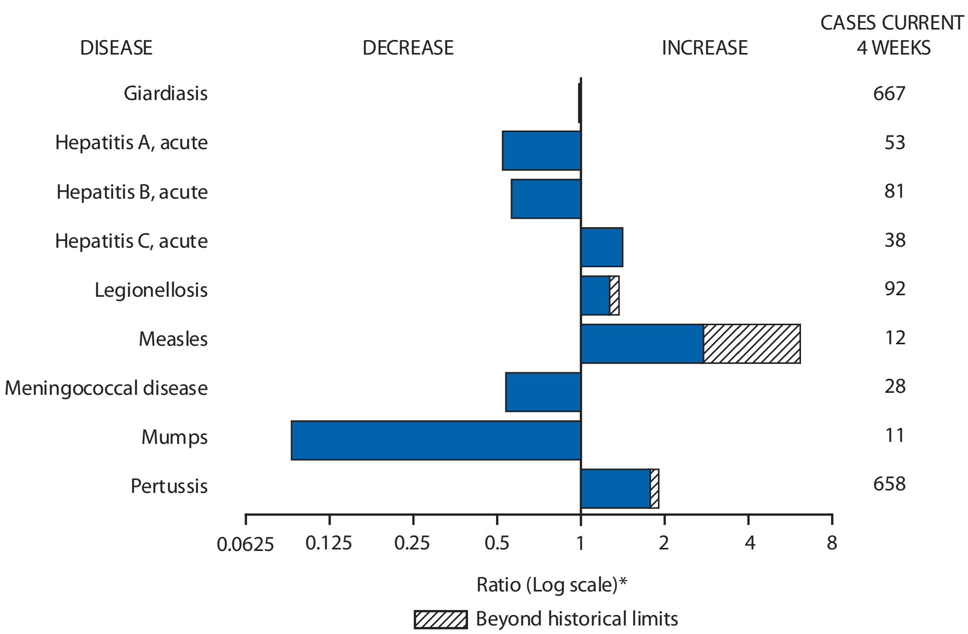
*** CDC discontinued reporting of individual confirmed and probable cases of 2009 pandemic influenza A (H1N1) virus infections on July 24, 2009. During 2009, four cases of human infection with novel influenza A viruses, different from the 2009 pandemic influenza A (H1N1) strain, were reported to CDC. The four cases of novel influenza A virus infection reported to CDC during 2010 and the one case reported in 2011 were identified as swine influenza A (H3N2) virus and are unrelated to the 2009 pandemic influenza A (H1N1) virus. Total case counts for 2009 were provided by the Influenza Division, National Center for Immunization and Respiratory Diseases (NCIRD).

††† No rubella cases were reported for the current week.

§§§ Updated weekly from reports to the Division of STD Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.

¶¶¶ There was one case of viral hemorrhagic fever reported during week 12 of 2010. The one case report was confirmed as lassa fever. See Table II for dengue hemorrhagic fever.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals April 2, 2011, with historical data



* Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

Notifiable Disease Data Team and 122 Cities Mortality Data Team

Willie J. Anderson

Deborah A. Adams, Pearl C. Sharp

Michael S. Wodajo, Lenee Blanton

Rosaline Dhara

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	*Chlamydia trachomatis* infection					Coccidioidomycosis					Cryptosporidiosis				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	10,728	24,688	27,798	291,139	312,392	143	0	505	3,084	NN	30	121	356	874	1,360
New England	526	805	2,046	10,124	8,996	—	0	1	1	NN	4	7	19	50	151
Connecticut	—	190	1,558	1,578	1,863	N	0	0	N	NN	—	0	12	12	77
Maine†	—	53	100	578	642	N	0	0	N	NN	—	0	7	1	13
Massachusetts	391	403	875	5,641	4,909	N	0	0	N	NN	2	3	9	24	29
New Hampshire	56	54	113	770	470	—	0	1	1	NN	1	1	5	5	17
Rhode Island†	49	70	154	1,178	802	—	0	0	—	NN	—	0	2	1	5
Vermont†	30	23	84	379	310	N	0	0	N	NN	1	1	5	7	10
Mid. Atlantic	1,645	3,347	5,202	39,565	41,046	—	0	0	—	NN	3	15	38	126	127
New Jersey	—	517	697	5,924	6,340	N	0	0	N	NN	—	0	4	—	5
New York (Upstate)	780	706	2,028	8,621	7,187	N	0	0	N	NN	1	4	13	34	21
New York City	217	1,174	2,777	12,481	15,968	N	0	0	N	NN	—	2	6	15	10
Pennsylvania	648	954	1,189	12,539	11,551	N	0	0	N	NN	2	8	26	77	91
E.N. Central	884	3,778	6,232	42,815	48,917	1	0	3	12	NN	3	30	130	197	343
Illinois	21	967	1,094	8,450	13,608	N	0	0	N	NN	—	3	21	13	48
Indiana	—	424	2,844	6,798	3,468	N	0	0	N	NN	—	4	10	23	54
Michigan	599	941	1,388	11,906	13,284	—	0	2	5	NN	—	5	18	43	77
Ohio	170	995	1,134	10,894	12,915	1	0	3	7	NN	3	7	24	76	74
Wisconsin	94	426	518	4,767	5,642	N	0	0	N	NN	—	9	65	42	90
W.N. Central	85	1,373	1,600	14,473	18,220	—	0	0	—	NN	3	19	83	70	187
Iowa	13	198	237	2,353	2,781	N	0	0	N	NN	—	4	24	8	46
Kansas	22	185	287	2,244	2,421	N	0	0	N	NN	—	2	9	13	19
Minnesota	—	292	354	2,695	3,885	—	0	0	—	NN	—	0	16	—	55
Missouri	—	501	619	4,844	6,516	—	0	0	—	NN	2	3	30	23	32
Nebraska†	50	94	186	1,295	1,334	N	0	0	N	NN	1	3	26	23	16
North Dakota	—	40	88	277	472	N	0	0	N	NN	—	0	9	—	1
South Dakota	—	62	91	765	811	N	0	0	N	NN	—	1	6	3	18
S. Atlantic	3,535	4,820	6,135	63,730	62,663	—	0	0	—	NN	6	19	39	192	210
Delaware	110	84	220	1,118	1,035	—	0	0	—	NN	—	0	1	2	1
District of Columbia	81	99	158	1,218	1,328	—	0	0	—	NN	—	0	1	2	1
Florida	678	1,453	1,706	17,609	18,448	N	0	0	N	NN	1	7	19	56	85
Georgia	561	699	2,201	9,595	9,720	N	0	0	N	NN	4	5	11	61	69
Maryland†	485	499	1,106	5,158	5,353	—	0	0	—	NN	—	1	3	12	7
North Carolina	285	742	1,436	11,565	12,084	N	0	0	N	NN	—	0	12	23	21
South Carolina†	477	530	847	6,643	6,457	N	0	0	N	NN	—	2	8	25	9
Virginia†	767	662	970	9,676	7,314	N	0	0	N	NN	1	2	9	10	13
West Virginia	91	76	124	1,148	924	N	0	0	N	NN	—	0	3	1	4
E.S. Central	980	1,757	2,412	19,081	21,215	—	0	0	—	NN	—	4	19	28	47
Alabama†	—	533	780	4,049	6,038	N	0	0	N	NN	—	2	13	6	13
Kentucky	304	266	585	3,057	3,907	N	0	0	N	NN	—	1	6	10	17
Mississippi	391	384	780	4,868	4,979	N	0	0	N	NN	—	0	2	4	4
Tennessee†	285	580	800	7,107	6,291	N	0	0	N	NN	—	1	5	8	13
W.S. Central	—	3,163	4,248	36,823	44,323	—	0	1	1	NN	—	7	31	24	64
Arkansas†	—	302	439	3,710	3,879	N	0	0	N	NN	—	0	3	3	11
Louisiana	—	387	792	4,869	6,742	—	0	1	1	NN	—	1	6	4	10
Oklahoma	—	240	1,373	1,902	3,140	N	0	0	N	NN	—	1	8	—	8
Texas†	—	2,294	3,112	26,342	30,562	N	0	0	N	NN	—	4	24	17	35
Mountain	859	1,512	2,147	17,446	20,116	101	0	422	2,193	NN	3	10	30	92	116
Arizona	134	493	704	2,611	6,290	100	0	417	2,151	NN	2	1	3	7	6
Colorado	322	337	874	6,178	4,979	N	0	0	N	NN	—	3	6	29	26
Idaho†	102	68	199	799	989	N	0	0	N	NN	1	2	7	13	22
Montana†	62	64	83	877	746	N	0	0	N	NN	—	1	4	9	14
Nevada†	182	191	380	2,716	2,282	1	0	4	22	NN	—	0	7	2	4
New Mexico†	—	194	1,253	2,260	2,673	—	0	4	15	NN	—	2	12	19	23
Utah	52	122	158	1,576	1,620	—	0	2	2	NN	—	1	5	9	15
Wyoming†	5	38	90	429	537	—	0	2	3	NN	—	0	2	4	6
Pacific	2,214	3,698	5,445	47,082	46,896	41	0	104	877	NN	8	12	29	95	115
Alaska	—	118	156	1,295	1,507	N	0	0	N	NN	—	0	3	3	2
California	2,024	2,849	4,717	37,819	35,114	41	0	104	877	NN	3	7	18	56	69
Hawaii	1	106	158	991	1,558	N	0	0	N	NN	—	0	0	—	1
Oregon	189	212	496	3,189	3,340	N	0	0	N	NN	4	3	13	34	32
Washington	—	391	509	3,788	5,377	N	0	0	N	NN	1	1	7	2	11
Territories															
American Samoa	—	0	0	—	—	N	0	0	N	NN	N	0	0	N	NN
C.N.M.I.	—	—	—	—	—	—	—	—	—	NN	—	—	—	—	—
Guam	—	10	44	153	24	—	0	0	—	NN	—	0	0	—	—
Puerto Rico	136	102	251	1,455	1,629	N	0	0	N	NN	N	0	0	N	NN
U.S. Virgin Islands	—	12	29	—	114	—	0	0	—	NN	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) **Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)***

	Dengue Virus Infection									
	Dengue Fever†					Dengue Hemorrhagic Fever§				
	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum
Reporting area	week	Med	Max	2011	2010	week	Med	Max	2011	2010
United States	—	6	51	8	70	—	0	2	—	1
New England	—	0	3	—	3	—	0	0	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—
Maine¶	—	0	2	—	3	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	1	—	—	—	0	0	—	—
Vermont¶	—	0	1	—	—	—	0	0	—	—
Mid. Atlantic	—	2	25	4	30	—	0	1	—	1
New Jersey	—	0	5	—	3	—	0	0	—	—
New York (Upstate)	—	0	5	—	4	—	0	1	—	—
New York City	—	1	17	—	18	—	0	1	—	1
Pennsylvania	—	0	3	4	5	—	0	0	—	—
E.N. Central	—	1	7	2	10	—	0	1	—	—
Illinois	—	0	3	—	2	—	0	0	—	—
Indiana	—	0	2	1	2	—	0	0	—	—
Michigan	—	0	2	—	1	—	0	0	—	—
Ohio	—	0	2	—	5	—	0	0	—	—
Wisconsin	—	0	2	1	—	—	0	1	—	—
W.N. Central	—	0	6	—	5	—	0	1	—	—
Iowa	—	0	1	—	—	—	0	0	—	—
Kansas	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	2	—	4	—	0	0	—	—
Missouri	—	0	0	—	—	—	0	0	—	—
Nebraska¶	—	0	6	—	—	—	0	0	—	—
North Dakota	—	0	0	—	1	—	0	0	—	—
South Dakota	—	0	0	—	—	—	0	1	—	—
S. Atlantic	—	2	19	—	13	—	0	1	—	—
Delaware	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
Florida	—	2	14	—	10	—	0	1	—	—
Georgia	—	0	2	—	1	—	0	0	—	—
Maryland¶	—	0	0	—	—	—	0	0	—	—
North Carolina	—	0	2	—	—	—	0	0	—	—
South Carolina¶	—	0	3	—	—	—	0	0	—	—
Virginia¶	—	0	3	—	2	—	0	0	—	—
West Virginia	—	0	1	—	—	—	0	0	—	—
E.S. Central	—	0	2	—	—	—	0	0	—	—
Alabama¶	—	0	2	—	—	—	0	0	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	0	—	—	—	0	0	—	—
Tennessee¶	—	0	1	—	—	—	0	0	—	—
W.S. Central	—	0	1	—	—	—	0	1	—	—
Arkansas¶	—	0	0	—	—	—	0	1	—	—
Louisiana	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	1	—	—	—	0	0	—	—
Texas¶	—	0	1	—	—	—	0	0	—	—
Mountain	—	0	2	—	2	—	0	0	—	—
Arizona	—	0	2	—	—	—	0	0	—	—
Colorado	—	0	0	—	—	—	0	0	—	—
Idaho¶	—	0	1	—	—	—	0	0	—	—
Montana¶	—	0	1	—	—	—	0	0	—	—
Nevada¶	—	0	1	—	1	—	0	0	—	—
New Mexico¶	—	0	0	—	1	—	0	0	—	—
Utah	—	0	0	—	—	—	0	0	—	—
Wyoming¶	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	6	2	7	—	0	0	—	—
Alaska	—	0	0	—	1	—	0	0	—	—
California	—	0	5	—	3	—	0	0	—	—
Hawaii	—	0	0	—	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—
Washington	—	0	2	2	3	—	0	0	—	—
Territories										
American Samoa	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	1	96	528	170	1,196	—	2	18	1	28
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Dengue Fever includes cases that meet criteria for Dengue Fever with hemorrhage, other clinical and unknown case classifications.
§ DHF includes cases that meet criteria for dengue shock syndrome (DSS), a more severe form of DHF.
¶ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

	Ehrlichiosis/Anaplasmosis†														
	Ehrlichia chaffeensis					*Anaplasma phagocytophilum*					Undetermined				
	Current week	Previous 52 weeks		Cum	Cum	Current week	Previous 52 weeks		Cum	Cum	Current week	Previous 52 weeks		Cum	Cum
Reporting area		Med	Max	2011	2010		Med	Max	2011	2010		Med	Max	2011	2010
United States	1	8	49	12	42	—	13	60	6	22	1	1	10	3	2
New England	—	0	2	—	1	—	1	9	1	7	—	0	1	—	—
Connecticut	—	0	0	—	—	—	0	6	—	—	—	0	0	—	—
Maine§	—	0	1	—	1	—	0	2	1	3	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	1	—	—	—	0	2	—	1	—	0	1	—	—
Rhode Island§	—	0	1	—	—	—	0	6	—	3	—	0	0	—	—
Vermont§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	—	0	10	—	6	—	4	15	2	1	—	0	1	1	1
New Jersey	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
New York (Upstate)	—	0	10	—	2	—	4	15	2	1	—	0	1	1	1
New York City	—	0	3	—	3	—	0	2	—	—	—	0	0	—	—
Pennsylvania	—	0	0	—	1	—	0	0	—	—	—	0	0	—	—
E.N. Central	—	0	4	2	4	—	4	41	—	10	—	1	7	1	1
Illinois	—	0	2	1	—	—	0	2	—	—	—	0	2	—	—
Indiana	—	0	0	—	—	—	0	0	—	—	—	0	3	1	1
Michigan	—	0	1	—	—	—	0	0	—	—	—	0	1	—	—
Ohio	—	0	3	1	—	—	0	1	—	—	—	0	0	—	—
Wisconsin	—	0	1	—	4	—	4	41	—	10	—	0	4	—	—
W.N. Central	—	1	13	2	1	—	0	3	—	—	—	0	3	—	—
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Kansas	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
Minnesota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Missouri	—	1	13	2	1	—	0	3	—	—	—	0	3	—	—
Nebraska§	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
S. Atlantic	1	3	17	8	27	—	1	7	1	4	—	0	1	—	—
Delaware	—	0	3	1	1	—	0	1	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Florida	1	0	2	3	1	—	0	1	—	—	—	0	0	—	—
Georgia	—	0	4	1	2	—	0	1	—	—	—	0	1	—	—
Maryland§	—	0	3	2	4	—	0	2	—	2	—	0	1	—	—
North Carolina	—	1	13	1	19	—	0	4	1	2	—	0	0	—	—
South Carolina§	—	0	2	—	—	—	0	1	—	—	—	0	0	—	—
Virginia§	—	1	8	—	—	—	0	2	—	—	—	0	1	—	—
West Virginia	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
E.S. Central	—	1	11	—	—	—	0	2	2	—	—	0	1	—	—
Alabama§	—	0	3	—	—	—	0	2	1	—	—	0	0	—	—
Kentucky	—	0	2	—	—	—	0	0	—	—	—	0	0	—	—
Mississippi	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
Tennessee§	—	0	7	—	—	—	0	2	1	—	—	0	1	—	—
W.S. Central	—	0	11	—	2	—	0	4	—	—	—	0	1	—	—
Arkansas§	—	0	5	—	—	—	0	2	—	—	—	0	0	—	—
Louisiana	—	0	0	—	1	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	6	—	—	—	0	2	—	—	—	0	0	—	—
Texas§	—	0	1	—	1	—	0	1	—	—	—	0	1	—	—
Mountain	—	0	0	—	—	—	0	0	—	—	1	0	0	1	—
Arizona	—	0	0	—	—	—	0	0	—	—	1	0	0	1	—
Colorado	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Idaho§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Montana§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Nevada§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
New Mexico§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Utah	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Wyoming§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	1	—	1	—	0	0	—	—	—	0	1	—	—
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
California	—	0	1	—	1	—	0	0	—	—	—	0	1	—	—
Hawaii	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Washington	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Cumulative total *E. ewingii* cases reported for year 2010 = 11, and 1 case report for 2011.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	Giardiasis					Gonorrhea					*Haemophilus influenzae*, invasive† All ages, all serotypes				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	172	328	497	2,924	4,158	2,147	5,770	6,588	65,159	71,099	30	59	121	773	846
New England	4	28	55	225	376	83	102	206	1,203	1,226	—	4	9	43	39
Connecticut	—	4	12	—	85	—	39	169	456	556	—	0	6	—	3
Maine§	—	3	11	23	44	—	2	7	32	61	—	0	2	5	1
Massachusetts	3	14	25	147	153	68	47	81	587	492	—	2	6	30	25
New Hampshire	—	2	10	14	40	7	3	7	30	37	—	0	1	4	5
Rhode Island§	—	1	7	7	17	7	5	15	91	70	—	0	2	3	4
Vermont§	1	4	10	34	37	1	0	17	7	10	—	0	3	1	1
Mid. Atlantic	32	61	106	563	696	322	713	1,170	8,573	8,144	4	11	26	145	181
New Jersey	—	3	18	—	90	—	117	173	1,539	1,331	—	2	5	22	26
New York (Upstate)	23	22	58	221	247	129	110	260	1,290	1,097	4	3	15	36	46
New York City	—	17	33	179	181	49	233	540	2,650	3,027	—	2	6	29	36
Pennsylvania	9	16	27	163	178	144	262	366	3,094	2,689	—	4	11	58	73
E.N. Central	23	53	91	455	763	211	1,036	1,943	11,399	12,884	6	10	20	132	142
Illinois	—	11	32	64	180	6	249	328	2,136	3,127	—	3	9	37	37
Indiana	—	5	11	45	102	—	110	971	1,961	1,006	—	1	7	11	26
Michigan	4	12	25	103	166	134	248	486	3,048	3,600	—	1	3	19	10
Ohio	18	17	29	183	202	56	318	383	3,327	4,046	6	2	6	50	30
Wisconsin	1	8	34	60	113	15	94	156	927	1,105	—	1	5	15	39
W.N. Central	14	24	102	240	282	17	288	367	2,934	3,444	1	3	7	27	46
Iowa	3	5	11	51	65	2	35	57	428	430	—	0	0	—	1
Kansas	2	3	10	35	57	3	40	62	404	449	—	0	2	2	5
Minnesota	—	0	75	—	—	—	38	62	346	571	—	0	4	—	12
Missouri	3	8	26	94	81	—	141	181	1,328	1,597	1	1	4	15	21
Nebraska§	6	4	9	48	55	12	22	50	283	275	—	0	3	10	3
North Dakota	—	0	5	—	3	—	3	9	26	35	—	0	2	—	4
South Dakota	—	2	8	12	21	—	9	20	119	87	—	0	0	—	—
S. Atlantic	31	69	114	576	850	863	1,374	1,808	16,908	18,275	11	15	26	193	196
Delaware	—	0	5	6	9	17	19	48	255	234	—	0	1	1	2
District of Columbia	—	0	5	5	11	35	34	66	434	511	—	0	1	—	—
Florida	10	39	75	281	438	174	383	486	4,448	4,921	8	4	9	71	49
Georgia	15	10	27	154	176	158	231	668	2,815	3,102	—	3	7	42	52
Maryland§	3	5	11	55	75	122	136	243	1,365	1,471	2	1	5	17	10
North Carolina	N	0	0	N	N	90	249	596	3,990	3,959	1	2	9	22	28
South Carolina§	1	3	9	20	27	135	152	261	1,910	1,926	—	1	5	14	29
Virginia§	2	8	32	52	105	109	130	223	1,453	2,030	—	2	6	26	21
West Virginia	—	0	6	3	9	23	14	26	238	121	—	0	9	—	5
E.S. Central	—	4	12	28	67	244	471	697	5,058	5,666	1	3	10	47	47
Alabama§	—	4	11	26	35	—	159	236	1,262	1,743	1	1	4	16	5
Kentucky	N	0	0	N	N	68	72	160	812	1,010	—	1	3	11	9
Mississippi	N	0	0	N	N	115	110	216	1,290	1,395	—	0	2	2	4
Tennessee§	—	0	4	2	32	61	144	195	1,694	1,518	—	1	5	18	29
W.S. Central	2	6	14	39	78	—	866	1,209	9,477	11,760	1	3	21	45	45
Arkansas§	1	2	7	19	19	—	95	137	1,148	1,117	—	0	3	10	7
Louisiana	1	3	8	20	34	—	100	284	1,334	1,861	—	0	4	19	10
Oklahoma	—	0	5	—	25	—	76	332	605	930	1	1	17	16	25
Texas§	N	0	0	N	N	—	597	866	6,390	7,852	—	0	1	—	3
Mountain	3	30	52	236	405	90	188	245	2,007	2,204	4	5	11	89	111
Arizona	—	3	8	26	38	20	59	81	457	742	1	2	7	39	47
Colorado	—	12	27	104	172	37	50	92	585	677	—	1	5	20	25
Idaho§	1	4	9	32	55	2	2	14	26	32	—	0	2	3	5
Montana§	—	1	6	6	31	—	2	5	23	34	—	0	1	2	—
Nevada§	1	2	11	22	15	30	34	103	564	382	2	0	1	6	4
New Mexico§	1	2	6	8	16	—	25	100	287	257	—	1	3	13	13
Utah	—	4	11	28	61	1	5	15	52	71	1	0	3	6	12
Wyoming§	—	0	5	10	17	—	1	4	13	9	—	0	1	—	5
Pacific	63	52	132	562	641	317	630	809	7,600	7,496	2	3	20	52	39
Alaska	—	2	6	11	25	—	22	36	197	363	—	0	2	7	9
California	37	32	57	385	404	303	522	684	6,511	6,024	—	0	16	9	—
Hawaii	—	1	4	3	17	2	13	26	129	187	1	0	2	7	8
Oregon	3	8	20	99	127	12	20	30	278	287	1	1	6	29	20
Washington	23	8	71	64	68	—	53	86	485	635	—	0	2	—	2
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	—	—	0	5	6	3	—	0	0	—	—
Puerto Rico	—	1	8	8	17	5	6	14	94	57	—	0	0	—	1
U.S. Virgin Islands	—	0	0	—	—	—	3	7	—	22	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Data for H. influenzae (age <5 yrs for serotype b, nonserotype b, and unknown serotype) are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

	Hepatitis (viral, acute), by type														
	A					B					C				
	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum
Reporting area	week	Med	Max	2011	2010	week	Med	Max	2011	2010	week	Med	Max	2011	2010
United States	12	29	44	267	395	23	61	142	503	729	13	14	27	180	182
New England	—	1	6	12	34	—	1	4	8	18	—	0	4	5	18
Connecticut	—	0	4	5	7	—	0	2	1	5	—	0	4	1	9
Maine†	—	0	1	1	2	—	0	1	2	5	—	0	2	2	—
Massachusetts	—	0	5	3	21	—	0	2	4	5	—	0	1	1	9
New Hampshire	—	0	1	—	—	—	0	2	1	2	N	0	0	N	N
Rhode Island†	—	0	1	1	4	U	0	0	U	U	U	0	0	U	U
Vermont†	—	0	1	2	—	—	0	1	—	1	—	0	1	1	—
Mid. Atlantic	—	3	10	38	54	2	5	10	57	69	2	1	5	14	19
New Jersey	—	0	1	—	7	—	1	5	6	18	—	0	2	—	4
New York (Upstate)	—	1	4	9	12	1	1	8	12	10	1	1	4	9	8
New York City	—	1	7	15	22	—	1	4	18	25	—	0	1	—	—
Pennsylvania	—	1	3	14	13	1	2	5	21	16	1	0	3	5	7
E.N. Central	3	4	9	44	66	1	9	22	73	140	2	2	6	36	20
Illinois	—	1	3	6	16	—	2	7	14	26	—	0	1	—	—
Indiana	—	0	3	7	7	—	1	6	7	21	—	0	4	14	7
Michigan	2	1	5	15	15	—	2	5	24	33	1	1	4	21	10
Ohio	1	1	5	15	10	1	1	16	23	28	1	0	1	1	2
Wisconsin	—	0	1	1	18	—	1	5	5	32	—	0	2	—	1
W.N. Central	—	1	13	10	15	—	2	8	26	39	—	0	8	3	2
Iowa	—	0	3	1	4	—	0	1	1	6	—	0	0	—	—
Kansas	—	0	2	2	6	—	0	1	3	2	—	0	1	—	—
Minnesota	—	0	12	—	—	—	0	7	—	2	—	0	6	—	1
Missouri	—	0	2	3	3	—	1	3	17	21	—	0	2	—	1
Nebraska†	—	0	4	2	2	—	0	3	4	8	—	0	1	3	—
North Dakota	—	0	3	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	2	—	—	0	1	1	—	—	0	0	—	—
S. Atlantic	7	6	14	56	76	6	17	33	146	191	3	3	5	39	36
Delaware	—	0	1	1	3	—	0	2	—	8	U	0	0	U	U
District of Columbia	—	0	0	—	1	—	0	1	—	1	—	0	1	—	1
Florida	2	3	7	21	27	5	5	11	51	70	1	0	3	12	—
Georgia	3	1	4	16	7	—	2	8	28	48	—	0	2	6	4
Maryland†	1	0	3	6	5	—	1	5	12	17	1	0	3	6	7
North Carolina	—	0	5	3	10	—	2	16	28	14	1	1	3	11	16
South Carolina†	—	0	1	2	14	—	1	4	5	11	—	0	1	—	—
Virginia†	1	1	6	7	8	1	2	7	22	15	—	0	2	4	4
West Virginia	—	0	5	—	1	—	0	18	—	7	—	0	5	—	4
E.S. Central	—	0	6	6	12	2	8	14	99	81	—	3	8	36	31
Alabama†	—	0	2	—	3	—	1	4	20	19	—	0	1	2	1
Kentucky	—	0	6	2	6	1	3	8	33	26	—	2	6	16	25
Mississippi	—	0	1	1	—	—	0	3	5	7	U	0	0	U	U
Tennessee†	—	0	2	3	3	1	3	8	41	29	—	1	5	18	5
W.S. Central	—	2	13	16	31	2	10	55	50	74	—	2	7	21	16
Arkansas†	—	0	1	—	—	—	1	4	5	10	—	0	0	—	—
Louisiana	—	0	2	1	3	—	1	4	12	16	—	0	2	4	1
Oklahoma	—	0	4	—	—	—	2	8	12	10	—	1	6	10	5
Texas†	—	2	9	15	28	2	5	43	21	38	—	0	3	7	10
Mountain	—	2	8	19	42	2	2	7	18	35	1	1	4	12	19
Arizona	—	1	4	7	20	—	0	2	2	11	U	0	0	U	U
Colorado	—	1	2	6	9	—	0	5	1	9	—	0	3	1	4
Idaho†	—	0	2	1	2	—	0	1	2	1	—	0	2	5	4
Montana†	—	0	1	2	2	—	0	0	—	—	—	0	1	1	—
Nevada†	—	0	2	1	4	2	1	3	11	8	1	0	1	3	1
New Mexico†	—	0	1	1	2	—	0	1	1	2	—	0	1	2	7
Utah	—	0	2	—	3	—	0	1	1	4	—	0	2	—	3
Wyoming†	—	0	3	1	—	—	0	1	—	—	—	0	0	—	—
Pacific	2	5	16	66	65	8	4	23	26	82	5	1	8	14	21
Alaska	—	0	1	—	—	—	0	1	1	1	U	0	0	U	U
California	1	4	16	57	50	5	3	18	10	60	3	0	3	6	9
Hawaii	—	0	1	2	4	—	0	1	1	2	U	0	0	U	U
Oregon	—	0	2	2	7	—	1	3	9	13	1	0	3	5	7
Washington	1	0	2	5	4	3	1	5	5	6	1	0	5	3	5
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	6	6	1	—	1	8	22	10	—	0	7	9	8
Puerto Rico	—	0	2	2	4	—	0	2	1	6	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	Legionellosis					Lyme disease					Malaria				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	21	57	122	403	521	45	412	1,680	1,376	3,282	7	27	81	214	275
New England	—	4	16	22	25	—	128	504	155	1,037	—	1	11	8	15
Connecticut	—	0	6	—	3	—	47	213	—	427	—	0	11	—	—
Maine†	—	0	3	3	—	—	11	62	38	49	—	0	1	—	—
Massachusetts	—	2	10	14	15	—	40	223	53	348	—	1	4	6	14
New Hampshire	—	0	5	2	1	—	24	69	46	183	—	0	2	—	1
Rhode Island†	—	0	4	1	5	—	1	40	4	13	—	0	4	—	—
Vermont†	—	0	2	2	1	—	4	28	14	17	—	0	1	2	—
Mid. Atlantic	7	13	48	93	115	24	180	737	809	1,529	—	7	18	52	69
New Jersey	—	1	11	1	18	—	47	220	142	464	—	0	1	—	—
New York (Upstate)	6	5	19	42	30	13	36	159	131	182	—	1	6	9	16
New York City	—	2	17	20	28	—	2	10	2	41	—	4	14	34	38
Pennsylvania	1	6	19	30	39	11	92	386	534	842	—	1	3	9	15
E.N. Central	5	12	44	79	128	—	26	330	19	147	—	3	9	18	23
Illinois	—	2	15	8	16	—	1	18	3	7	—	1	7	3	8
Indiana	1	1	6	8	25	—	0	7	1	12	—	0	2	2	2
Michigan	—	3	20	17	17	—	1	14	2	1	—	0	4	4	3
Ohio	4	4	15	46	44	—	0	9	3	5	—	1	5	8	9
Wisconsin	—	0	5	—	26	—	23	302	10	122	—	0	2	1	1
W.N. Central	—	2	9	7	17	—	1	11	—	3	—	1	4	2	15
Iowa	—	0	2	1	1	—	0	10	—	2	—	0	2	—	3
Kansas	—	0	2	1	2	—	0	1	—	1	—	0	2	1	3
Minnesota	—	0	8	—	4	—	0	0	—	—	—	0	0	—	3
Missouri	—	0	4	4	5	—	0	1	—	—	—	0	3	—	2
Nebraska†	—	0	2	—	2	—	0	2	—	—	—	0	1	1	4
North Dakota	—	0	1	—	1	—	0	5	—	—	—	0	1	—	—
South Dakota	—	0	2	1	2	—	0	1	—	—	—	0	2	—	—
S. Atlantic	5	10	27	66	85	19	57	177	347	504	4	7	44	72	92
Delaware	—	0	3	—	3	3	10	33	82	134	—	0	1	—	1
District of Columbia	—	0	4	—	1	—	0	4	3	1	—	0	2	1	2
Florida	4	3	9	38	34	2	2	10	20	13	1	2	7	22	33
Georgia	—	1	4	1	12	—	0	2	1	2	—	1	7	11	14
Maryland†	—	2	6	10	20	9	23	106	140	226	3	1	24	14	13
North Carolina	—	1	7	9	4	3	0	9	9	34	—	0	13	8	17
South Carolina†	—	0	2	1	1	—	0	3	1	8	—	0	1	—	1
Virginia†	1	1	9	7	9	2	18	82	91	75	—	1	5	16	11
West Virginia	—	0	3	—	1	—	0	29	—	11	—	0	1	—	—
E.S. Central	—	2	10	14	22	—	0	4	5	10	1	0	3	5	4
Alabama†	—	0	2	2	3	—	0	2	3	—	—	0	1	1	1
Kentucky	—	0	4	4	6	—	0	1	—	1	—	0	1	2	2
Mississippi	—	0	3	1	2	—	0	0	—	—	1	0	2	1	—
Tennessee†	—	1	6	7	11	—	0	4	2	9	—	0	2	1	1
W.S. Central	—	3	8	17	16	—	2	22	3	12	—	1	17	10	19
Arkansas†	—	0	2	—	1	—	0	0	—	—	—	0	1	—	1
Louisiana	—	0	3	6	1	—	0	1	—	—	—	0	1	—	1
Oklahoma	—	0	3	1	—	—	0	0	—	—	—	0	1	1	2
Texas†	—	2	7	10	14	—	2	22	3	12	—	1	16	9	15
Mountain	—	3	10	16	39	—	0	3	2	2	—	1	4	11	12
Arizona	—	1	7	6	10	—	0	1	1	—	—	0	3	3	4
Colorado	—	0	2	1	11	—	0	1	—	—	—	0	3	3	3
Idaho†	—	0	1	1	—	—	0	2	—	1	—	0	1	—	—
Montana†	—	0	1	—	1	—	0	1	—	—	—	0	1	—	—
Nevada†	—	0	2	2	8	—	0	1	—	—	—	0	2	3	2
New Mexico†	—	0	2	1	1	—	0	2	1	—	—	0	1	2	—
Utah	—	0	2	4	8	—	0	1	—	1	—	0	0	—	3
Wyoming†	—	0	2	1	—	—	0	0	—	—	—	0	0	—	—
Pacific	4	5	15	89	74	2	4	11	36	38	2	4	10	36	26
Alaska	—	0	2	—	—	—	0	1	—	1	—	0	2	2	1
California	3	4	14	80	66	2	2	8	27	21	1	2	9	27	18
Hawaii	—	0	1	1	—	N	0	0	N	N	—	0	1	—	—
Oregon	—	0	3	2	1	—	0	3	9	16	—	0	3	3	2
Washington	1	0	5	6	7	—	0	3	—	—	1	0	5	4	5
Territories															
American Samoa	—	0	0	—	—	N	0	0	N	N	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	N	0	0	N	N	—	0	1	—	3
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	Meningococcal disease, invasive† All serogroups					Mumps					Pertussis				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
		Med	Max				Med	Max				Med	Max		
United States	7	14	37	198	251	1	14	220	85	996	101	541	2,151	3,253	2,884
New England	—	0	3	10	4	—	0	2	1	15	2	10	24	86	64
Connecticut	—	0	1	1	—	—	0	1	—	10	—	1	8	—	9
Maine§	—	0	1	2	—	—	0	1	—	1	—	1	8	28	4
Massachusetts	—	0	2	7	2	—	0	2	1	4	2	5	13	45	43
New Hampshire	—	0	0	—	—	—	0	1	—	—	—	0	3	9	3
Rhode Island§	—	0	1	—	—	—	0	0	—	—	—	0	7	3	3
Vermont§	—	0	1	—	2	—	0	0	—	—	—	0	4	1	2
Mid. Atlantic	—	1	5	21	25	—	5	209	9	897	17	38	122	348	163
New Jersey	—	0	1	—	9	—	1	15	4	206	—	2	9	11	32
New York (Upstate)	—	0	4	7	3	—	0	18	1	567	10	12	85	114	58
New York City	—	0	3	8	6	—	0	201	4	115	—	0	12	7	—
Pennsylvania	—	0	2	6	7	—	0	16	—	9	7	20	70	216	73
E.N. Central	1	2	9	23	40	—	1	7	17	30	24	114	194	828	705
Illinois	—	0	3	7	7	—	1	2	8	6	—	22	52	139	100
Indiana	—	0	2	2	11	—	0	1	—	2	—	12	26	49	73
Michigan	—	0	4	2	4	—	0	1	2	11	6	31	57	271	194
Ohio	1	1	2	9	9	—	0	5	7	4	17	34	80	287	260
Wisconsin	—	0	3	3	9	—	0	2	—	7	1	12	24	82	78
W.N. Central	1	1	5	13	17	—	1	14	11	13	2	36	416	191	204
Iowa	—	0	1	3	4	—	0	7	1	3	—	12	34	40	39
Kansas	—	0	2	1	1	—	0	1	3	1	1	2	9	19	37
Minnesota	—	0	1	—	2	—	0	4	—	2	—	0	408	—	—
Missouri	1	0	4	5	8	—	0	3	5	5	—	8	44	90	98
Nebraska§	—	0	2	3	2	—	0	10	1	2	1	4	13	27	15
North Dakota	—	0	1	—	—	—	0	1	1	—	—	0	30	13	—
South Dakota	—	0	1	1	—	—	0	1	—	—	—	0	2	2	15
S. Atlantic	3	2	6	33	55	1	0	5	3	20	8	40	106	366	336
Delaware	—	0	1	—	1	—	0	0	—	—	1	0	4	6	—
District of Columbia	—	0	0	—	—	—	0	1	—	2	—	0	2	1	1
Florida	2	1	3	11	25	1	0	3	1	2	4	6	28	82	48
Georgia	—	0	2	1	4	—	0	2	1	—	—	5	13	59	49
Maryland§	—	0	1	2	2	—	0	1	—	5	—	2	6	25	40
North Carolina	1	0	3	8	8	—	0	2	—	2	3	3	35	75	124
South Carolina§	—	0	1	4	4	—	0	2	—	3	—	6	25	42	46
Virginia§	—	0	2	7	10	—	0	2	1	4	—	7	39	76	23
West Virginia	—	0	1	—	1	—	0	0	—	2	—	0	43	—	5
E.S. Central	—	1	3	10	12	—	0	2	3	3	5	14	35	100	209
Alabama§	—	0	1	6	2	—	0	2	1	1	—	4	8	28	57
Kentucky	—	0	2	—	5	—	0	1	—	—	—	4	16	38	74
Mississippi	—	0	1	1	2	—	0	1	2	—	—	1	8	3	16
Tennessee§	—	0	2	3	3	—	0	1	—	2	5	3	11	31	62
W.S. Central	2	1	10	21	30	—	2	16	34	11	15	54	234	200	686
Arkansas§	1	0	1	5	2	—	0	1	—	1	—	3	17	10	37
Louisiana	—	0	2	5	6	—	0	2	—	—	—	1	3	3	10
Oklahoma	1	0	1	3	12	—	0	1	—	—	—	0	63	8	3
Texas§	—	1	9	8	10	—	2	15	34	10	15	45	157	179	636
Mountain	—	1	6	13	15	—	0	4	1	3	1	41	99	548	262
Arizona	—	0	2	5	5	—	0	1	—	1	1	11	29	170	99
Colorado	—	0	4	1	3	—	0	1	—	2	—	12	67	226	28
Idaho§	—	0	1	3	1	—	0	1	—	—	—	2	15	25	40
Montana§	—	0	1	—	1	—	0	0	—	—	—	2	16	43	5
Nevada§	—	0	1	1	2	—	0	1	—	—	—	0	7	7	1
New Mexico§	—	0	1	—	2	—	0	2	1	—	—	2	11	27	27
Utah	—	0	1	3	1	—	0	1	—	—	—	6	13	48	61
Wyoming§	—	0	1	—	—	—	0	1	—	—	—	0	2	2	1
Pacific	—	3	15	54	53	—	0	18	6	4	27	150	1,101	586	255
Alaska	—	0	1	—	—	—	0	1	1	1	—	0	6	13	4
California	—	2	10	37	39	—	0	18	—	—	12	130	959	448	149
Hawaii	—	0	1	2	1	—	0	1	2	1	—	1	6	7	17
Oregon	—	1	3	12	9	—	0	1	3	1	1	5	12	44	57
Washington	—	0	4	3	4	—	0	2	—	1	14	8	132	74	28
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	1	15	12	7	—	0	14	28	—
Puerto Rico	—	0	0	—	—	—	0	1	—	—	—	0	1	1	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Data for meningococcal disease, invasive caused by serogroups A, C, Y, and W-135; serogroup B; other serogroup; and unknown serogroup are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	Rabies, animal					Salmonellosis					Shiga toxin-producing *E. coli* (STEC)[†]				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	31	59	143	367	731	311	934	1,768	5,424	7,176	43	92	215	610	590
New England	1	3	11	19	58	8	33	104	296	783	—	2	13	18	81
Connecticut	—	0	7	—	22	—	0	82	82	490	—	0	9	9	60
Maine[§]	1	1	3	8	17	1	3	8	25	17	—	0	3	1	1
Massachusetts	—	0	0	—	—	6	23	52	150	218	—	1	9	3	12
New Hampshire	—	0	6	2	4	—	3	12	20	28	—	0	2	5	7
Rhode Island[§]	—	0	4	2	2	—	2	18	10	20	—	0	1	—	—
Vermont[§]	—	1	3	7	13	1	1	5	9	10	—	0	2	—	1
Mid. Atlantic	6	18	41	56	246	42	95	218	561	816	4	10	32	67	54
New Jersey	—	0	0	—	—	—	14	57	52	157	—	1	9	11	12
New York (Upstate)	6	8	19	56	104	27	25	63	156	164	1	4	12	20	16
New York City	—	0	5	—	79	—	23	56	145	206	—	1	7	7	7
Pennsylvania	—	8	24	—	63	15	31	81	208	289	3	3	13	29	19
E.N. Central	1	2	27	11	6	27	91	253	570	849	3	13	44	83	94
Illinois	—	1	11	4	1	—	34	124	167	291	—	2	9	7	21
Indiana	—	0	0	—	—	—	13	62	49	98	—	2	10	16	10
Michigan	—	1	5	3	3	1	15	49	99	158	1	3	16	22	23
Ohio	1	0	12	4	2	26	24	47	199	210	2	3	11	27	10
Wisconsin	—	0	0	—	—	—	10	48	56	92	—	4	17	11	30
W.N. Central	1	4	36	9	41	13	44	97	296	385	5	11	39	48	65
Iowa	—	0	3	—	2	—	10	34	76	43	—	2	16	10	10
Kansas	1	1	4	5	17	3	7	18	46	62	—	1	5	8	8
Minnesota	—	0	34	—	8	—	0	32	—	100	—	0	7	—	17
Missouri	—	1	6	—	3	7	13	44	128	115	4	4	27	19	19
Nebraska[§]	—	1	4	4	11	3	4	13	28	34	1	1	6	10	8
North Dakota	—	0	3	—	—	—	0	13	—	4	—	0	10	—	—
South Dakota	—	0	0	—	—	—	3	17	18	27	—	0	4	1	3
S. Atlantic	16	20	38	213	291	121	263	610	1,601	1,881	14	16	34	186	95
Delaware	—	0	0	—	—	1	3	11	20	16	1	0	2	3	—
District of Columbia	—	0	0	—	—	—	1	6	4	16	—	0	1	1	2
Florida	—	0	17	28	96	71	108	226	660	854	9	6	23	91	40
Georgia	—	0	0	—	—	23	41	144	309	232	—	2	7	17	12
Maryland[§]	3	6	15	55	87	9	18	57	123	156	1	2	9	22	11
North Carolina	—	0	0	—	—	8	29	240	237	354	2	2	10	24	8
South Carolina[§]	—	0	0	—	—	—	25	99	100	103	—	0	3	4	3
Virginia[§]	13	12	25	130	91	9	21	68	142	113	1	3	9	24	19
West Virginia	—	1	7	—	17	—	1	13	6	37	—	0	3	—	—
E.S. Central	1	3	7	32	31	10	55	177	360	351	3	5	22	39	33
Alabama[§]	—	1	4	16	7	3	20	52	115	121	—	1	4	5	11
Kentucky	—	0	4	3	—	2	11	32	63	63	—	1	6	7	3
Mississippi	—	0	1	—	—	—	18	67	69	59	1	0	12	4	4
Tennessee[§]	1	1	4	13	24	5	17	53	113	108	2	2	7	23	15
W.S. Central	4	0	30	10	10	6	132	396	444	628	3	8	84	41	30
Arkansas[§]	4	0	7	7	6	—	12	43	71	46	1	0	5	5	5
Louisiana	—	0	0	—	—	1	19	49	76	160	—	0	2	2	4
Oklahoma	—	0	30	3	4	5	12	39	59	54	1	1	24	6	1
Texas[§]	—	0	0	—	—	—	84	345	238	368	1	5	60	28	20
Mountain	1	1	7	4	14	8	50	113	398	507	2	11	34	44	73
Arizona	—	0	0	—	—	2	16	43	126	173	1	1	13	18	14
Colorado	—	0	0	—	—	—	10	24	106	120	—	3	21	5	20
Idaho[§]	—	0	2	—	1	2	3	9	39	28	1	2	7	7	9
Montana[§]	—	0	3	2	—	1	1	6	11	24	—	1	3	2	9
Nevada[§]	—	0	2	—	—	2	5	22	34	31	—	0	5	2	1
New Mexico[§]	1	0	2	2	3	1	6	19	34	60	—	0	6	3	8
Utah	—	0	2	—	—	—	5	17	38	56	—	1	7	7	11
Wyoming[§]	—	0	4	—	10	—	1	8	10	15	—	0	3	—	1
Pacific	—	1	13	13	34	76	117	291	898	976	9	12	52	84	65
Alaska	—	0	2	9	8	—	1	4	11	19	—	0	1	—	1
California	—	0	12	—	22	41	79	217	688	731	7	6	32	64	36
Hawaii	—	0	0	—	—	2	6	14	69	61	—	0	3	1	12
Oregon	—	0	2	4	4	2	8	48	61	93	—	2	11	9	8
Washington	—	0	0	—	—	31	14	71	69	72	2	2	18	10	8
Territories															
American Samoa	N	0	0	N	N	—	0	1	—	1	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	3	4	—	—	0	0	—	—
Puerto Rico	—	1	3	6	15	—	7	21	15	137	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Includes E. coli O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin-positive, not serogrouped.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	Shigellosis					Spotted Fever Rickettsiosis (including RMSF)† Confirmed					Spotted Fever Rickettsiosis (including RMSF)† Probable				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	122	274	500	1,871	3,289	1	2	10	13	10	3	27	99	63	82
New England	2	4	17	49	128	—	0	0	—	—	—	0	1	1	—
Connecticut	—	0	7	7	69	—	0	0	—	—	—	0	0	—	—
Maine§	—	0	3	5	2	—	0	0	—	—	—	0	1	—	—
Massachusetts	2	3	16	36	49	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	2	—	3	—	0	0	—	—	—	0	1	—	—
Rhode Island§	—	0	4	—	4	—	0	0	—	—	—	0	1	1	—
Vermont§	—	0	1	1	1	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	—	24	70	116	474	—	0	1	—	—	—	1	4	3	6
New Jersey	—	4	16	16	79	—	0	0	—	—	—	0	0	—	—
New York (Upstate)	—	3	15	25	43	—	0	1	—	—	—	0	3	—	—
New York City	—	5	14	51	78	—	0	1	—	—	—	0	4	2	6
Pennsylvania	—	9	55	24	274	—	0	0	—	—	—	0	3	1	—
E.N. Central	3	23	45	128	681	—	0	1	—	—	—	1	10	2	1
Illinois	—	8	20	38	479	—	0	1	—	—	—	0	5	—	—
Indiana§	—	1	4	12	8	—	0	1	—	—	—	0	5	—	1
Michigan	—	5	10	27	49	—	0	0	—	—	—	0	1	1	—
Ohio	3	5	18	51	63	—	0	0	—	—	—	0	2	1	—
Wisconsin	—	2	21	—	82	—	0	0	—	—	—	0	1	—	—
W.N. Central	—	22	81	94	693	—	0	4	2	—	—	4	21	11	6
Iowa	—	1	4	4	14	—	0	0	—	—	—	0	1	1	—
Kansas§	—	4	13	20	51	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	3	—	14	—	0	0	—	—	—	0	0	—	—
Missouri	—	14	66	66	606	—	0	4	2	—	—	4	20	10	6
Nebraska§	—	1	10	3	5	—	0	1	—	—	—	0	1	—	—
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
South Dakota	—	0	2	1	3	—	0	0	—	—	—	0	0	—	—
S. Atlantic	63	58	123	652	402	1	1	7	5	7	3	7	60	21	55
Delaware§	—	0	2	—	27	—	0	0	—	1	—	0	3	1	3
District of Columbia	—	0	3	5	8	—	0	1	—	—	—	0	0	—	—
Florida§	55	27	55	436	139	—	0	1	1	—	—	0	2	1	—
Georgia	4	15	26	102	138	1	0	6	2	2	—	0	0	—	—
Maryland§	1	2	8	18	22	—	0	1	1	1	—	0	5	1	6
North Carolina	1	3	36	61	30	—	0	3	1	3	2	2	48	12	42
South Carolina§	—	1	5	9	21	—	0	1	—	—	—	0	2	1	2
Virginia§	2	2	8	21	17	—	0	2	—	—	1	2	12	5	2
West Virginia	—	0	66	—	—	—	0	0	—	—	—	0	0	—	—
E.S. Central	2	14	40	97	117	—	0	3	—	1	—	5	29	6	7
Alabama§	—	5	14	43	16	—	0	1	—	—	—	1	8	4	1
Kentucky	—	2	28	9	39	—	0	2	—	—	—	0	0	—	—
Mississippi	—	1	5	16	9	—	0	0	—	—	—	0	3	—	—
Tennessee§	2	4	14	29	53	—	0	2	—	1	—	4	20	2	6
W.S. Central	24	54	257	322	433	—	0	4	—	1	—	2	43	3	6
Arkansas§	—	1	6	5	11	—	0	2	—	—	—	1	29	1	1
Louisiana	—	5	13	30	41	—	0	0	—	—	—	0	1	—	—
Oklahoma	4	3	13	25	68	—	0	3	—	—	—	0	11	1	1
Texas§	20	44	240	262	313	—	0	1	—	1	—	0	3	1	4
Mountain	13	16	32	177	146	—	0	5	6	—	—	0	7	16	1
Arizona	—	8	19	39	83	—	0	4	6	—	—	0	7	16	—
Colorado§	—	2	8	24	18	—	0	1	—	—	—	0	1	—	—
Idaho§	—	0	3	6	4	—	0	0	—	—	—	0	1	—	—
Montana§	12	0	15	65	3	—	0	1	—	—	—	0	1	—	—
Nevada§	—	0	6	6	5	—	0	0	—	—	—	0	0	—	—
New Mexico§	—	3	10	31	24	—	0	0	—	—	—	0	0	—	1
Utah	1	1	4	6	9	—	0	0	—	—	—	0	1	—	—
Wyoming§	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
Pacific	15	22	73	236	215	—	0	2	—	1	—	0	1	—	—
Alaska	—	0	1	1	—	N	0	0	N	N	N	0	0	N	N
California	12	19	58	194	179	—	0	2	—	1	—	0	0	—	—
Hawaii	—	1	4	16	10	N	0	0	N	N	N	0	0	N	N
Oregon	—	1	4	13	16	—	0	0	—	—	—	0	1	—	—
Washington	3	1	17	12	10	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	—	1	1	1	—	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	1	—	N	0	0	N	N	N	0	0	N	N
Puerto Rico	—	0	1	—	—	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Illnesses with similar clinical presentation that result from Spotted fever group rickettsia infections are reported as Spotted fever rickettsioses. Rocky Mountain spotted fever (RMSF) caused by Rickettsia rickettsii, is the most common and well-known spotted fever.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

Reporting area	*Streptococcus pneumoniae*,† invasive disease — All ages: Current week	All ages: Previous 52 weeks Med	All ages: Previous 52 weeks Max	All ages: Cum 2011	All ages: Cum 2010	Age <5: Current week	Age <5: Previous 52 weeks Med	Age <5: Previous 52 weeks Max	Age <5: Cum 2011	Age <5: Cum 2010	Syphilis, primary and secondary: Current week	Syphilis: Previous 52 weeks Med	Syphilis: Previous 52 weeks Max	Syphilis: Cum 2011	Syphilis: Cum 2010
United States	184	285	825	4,381	5,080	19	32	92	365	813	51	252	348	2,341	3,114
New England	3	9	99	72	190	—	1	14	8	30	5	9	20	89	100
Connecticut	—	0	91	—	45	—	0	12	—	2	—	1	8	11	17
Maine§	1	2	13	37	39	—	0	1	1	3	—	0	3	2	8
Massachusetts	—	1	5	11	33	—	0	3	5	21	3	5	15	58	63
New Hampshire	—	0	7	—	44	—	0	0	—	3	2	0	2	7	4
Rhode Island§	—	1	36	7	—	—	0	3	—	—	—	1	4	9	6
Vermont§	2	1	5	17	29	—	0	1	2	1	—	0	1	2	2
Mid. Atlantic	14	32	60	469	350	3	6	19	53	104	5	30	45	264	439
New Jersey	—	1	8	15	33	—	1	5	10	18	—	4	10	43	60
New York (Upstate)	2	3	11	26	51	2	1	9	16	40	2	2	18	38	20
New York City	—	15	33	230	116	—	1	14	9	26	—	14	31	99	263
Pennsylvania	12	12	22	198	150	1	1	5	18	20	3	7	16	84	96
E.N. Central	52	61	105	886	1,048	4	5	13	54	139	—	30	53	183	491
Illinois	—	1	6	13	44	—	1	4	13	38	—	13	25	38	256
Indiana	—	8	27	116	236	—	0	6	3	19	—	4	14	36	39
Michigan	3	14	29	187	229	—	1	4	10	34	—	4	9	23	73
Ohio	42	25	45	450	415	4	2	5	23	30	—	9	21	77	107
Wisconsin	7	7	19	120	124	—	0	4	5	18	—	1	3	9	16
W.N. Central	4	10	59	131	307	1	1	9	23	65	—	6	18	64	68
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	3	3	4
Kansas	1	2	6	26	37	—	0	2	2	7	—	0	3	2	4
Minnesota	—	0	46	—	163	—	0	6	—	30	—	3	10	32	13
Missouri	2	2	10	61	46	1	0	4	18	18	—	2	9	26	45
Nebraska§	1	2	9	44	48	—	0	2	3	6	—	0	2	1	2
North Dakota	—	0	11	—	4	—	0	1	—	—	—	0	0	—	—
South Dakota	—	0	2	—	9	—	0	2	—	4	—	0	1	—	—
S. Atlantic	56	59	133	1,122	1,302	6	8	23	90	214	32	62	153	669	666
Delaware	—	1	4	25	10	—	0	1	—	—	—	0	4	4	1
District of Columbia	—	0	2	4	12	—	0	2	1	3	3	3	15	43	30
Florida	34	26	68	566	610	5	3	13	47	86	—	23	43	235	240
Georgia	2	10	21	134	231	—	2	6	13	63	9	13	108	86	92
Maryland§	19	9	32	211	177	1	1	4	10	23	—	7	16	96	54
North Carolina	—	0	0	—	—	—	0	0	—	—	11	6	19	95	132
South Carolina§	1	8	25	168	206	—	0	4	5	20	3	3	10	52	36
Virginia§	—	1	4	14	18	—	1	4	14	16	6	4	22	58	78
West Virginia	—	1	11	—	38	—	0	4	—	3	—	0	2	—	3
E.S. Central	20	25	45	417	476	2	2	7	25	43	5	16	39	125	199
Alabama§	—	0	0	—	—	—	0	0	—	—	—	4	11	27	67
Kentucky	3	4	11	59	54	1	0	3	7	3	1	2	12	24	24
Mississippi	—	1	8	4	25	—	0	2	—	5	3	4	16	28	40
Tennessee§	17	21	39	354	397	1	1	6	18	35	1	5	17	46	68
W.S. Central	5	35	339	509	564	1	5	26	54	91	—	38	71	337	471
Arkansas§	3	3	23	83	55	1	0	3	9	9	—	3	10	35	71
Louisiana	1	2	10	74	44	—	0	2	6	13	—	8	36	59	79
Oklahoma	—	1	4	12	21	—	1	4	12	21	—	2	6	10	18
Texas§	1	27	310	340	444	—	3	19	27	48	—	23	33	233	303
Mountain	18	35	75	676	745	2	3	9	54	112	2	12	26	78	118
Arizona	14	12	39	325	379	2	1	5	24	52	1	4	9	7	49
Colorado	—	11	23	155	187	—	1	3	8	25	—	2	8	23	33
Idaho§	—	0	2	3	6	—	0	2	2	2	—	0	2	3	1
Montana§	—	0	2	3	5	—	0	1	—	—	—	0	2	1	—
Nevada§	1	2	8	39	29	—	0	1	3	3	1	2	9	28	19
New Mexico§	2	3	13	88	62	—	0	2	7	12	—	1	4	11	8
Utah	—	4	8	53	71	—	0	3	10	16	—	1	5	5	8
Wyoming§	1	0	15	10	6	—	0	1	—	2	—	0	0	—	—
Pacific	12	6	24	99	98	—	0	5	4	15	2	48	64	532	562
Alaska	—	2	11	38	46	—	0	2	3	11	—	0	1	—	2
California	12	3	23	60	52	—	0	5	1	4	2	41	57	470	474
Hawaii	—	0	3	1	—	—	0	0	—	—	—	0	5	1	11
Oregon	—	0	0	—	—	—	0	0	—	—	—	1	7	27	18
Washington	—	0	0	—	—	—	0	0	—	—	—	4	13	34	57
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—	5	4	15	61	53
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Includes drug resistant and susceptible cases of invasive Streptococcus pneumoniae disease among children <5 years and among all ages. Case definition: Isolation of S. pneumoniae from a normally sterile body site (e.g., blood or cerebrospinal fluid).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 2, 2011, and April 3, 2010 (13th week)*

	Varicella (chickenpox)					West Nile virus disease†									
						Neuroinvasive					Nonneuroinvasive§				
	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum
Reporting area	week	Med	Max	2011	2010	week	Med	Max	2011	2010	week	Med	Max	2011	2010
United States	163	246	574	2,739	4,334	—	1	71	—	1	—	1	53	—	2
New England	4	20	46	173	279	—	0	3	—	—	—	0	2	—	—
Connecticut	—	5	20	—	68	—	0	2	—	—	—	0	2	—	—
Maine¶	—	4	16	42	71	—	0	0	—	—	—	0	0	—	—
Massachusetts	3	5	17	84	68	—	0	2	—	—	—	0	1	—	—
New Hampshire	—	2	9	9	44	—	0	1	—	—	—	0	0	—	—
Rhode Island¶	—	1	4	6	4	—	0	0	—	—	—	0	0	—	—
Vermont¶	1	2	13	32	24	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	19	27	62	268	453	—	0	19	—	—	—	0	13	—	—
New Jersey	—	6	30	58	154	—	0	3	—	—	—	0	6	—	—
New York (Upstate)	N	0	0	N	N	—	0	9	—	—	—	0	7	—	—
New York City	—	0	0	—	1	—	0	7	—	—	—	0	4	—	—
Pennsylvania	19	18	41	210	298	—	0	3	—	—	—	0	3	—	—
E.N. Central	37	74	154	893	1,617	—	0	15	—	—	—	0	7	—	—
Illinois	3	18	43	188	414	—	0	10	—	—	—	0	4	—	—
Indiana¶	1	5	24	60	169	—	0	2	—	—	—	0	2	—	—
Michigan	9	26	53	298	526	—	0	6	—	—	—	0	1	—	—
Ohio	24	21	58	346	412	—	0	1	—	—	—	0	1	—	—
Wisconsin	—	5	22	1	96	—	0	0	—	—	—	0	1	—	—
W.N. Central	1	11	32	64	229	—	0	7	—	—	—	0	11	—	—
Iowa	N	0	0	N	N	—	0	1	—	—	—	0	2	—	—
Kansas¶	1	2	19	40	102	—	0	1	—	—	—	0	3	—	—
Minnesota	—	0	0	—	—	—	0	1	—	—	—	0	3	—	—
Missouri	—	7	23	10	107	—	0	1	—	—	—	0	0	—	—
Nebraska¶	N	0	0	N	N	—	0	3	—	—	—	0	7	—	—
North Dakota	—	0	10	11	14	—	0	2	—	—	—	0	2	—	—
South Dakota	—	1	7	3	6	—	0	2	—	—	—	0	3	—	—
S. Atlantic	21	32	100	339	537	—	0	6	—	—	—	0	4	—	2
Delaware¶	—	0	4	2	3	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	4	5	1	—	0	1	—	—	—	0	1	—	—
Florida¶	21	15	57	255	271	—	0	3	—	—	—	0	1	—	—
Georgia	N	0	0	N	N	—	0	1	—	—	—	0	3	—	2
Maryland¶	N	0	0	N	N	—	0	3	—	—	—	0	2	—	—
North Carolina	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
South Carolina¶	—	0	13	—	44	—	0	1	—	—	—	0	0	—	—
Virginia¶	—	10	29	77	110	—	0	1	—	—	—	0	1	—	—
West Virginia	—	6	26	—	108	—	0	0	—	—	—	0	0	—	—
E.S. Central	9	5	22	85	63	—	0	1	—	1	—	0	3	—	—
Alabama¶	9	5	22	81	63	—	0	1	—	—	—	0	1	—	—
Kentucky	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Mississippi	—	0	2	4	—	—	0	1	—	1	—	0	2	—	—
Tennessee¶	N	0	0	N	N	—	0	1	—	—	—	0	2	—	—
W.S. Central	70	42	202	581	769	—	0	16	—	—	—	0	3	—	—
Arkansas¶	10	3	32	58	38	—	0	3	—	—	—	0	1	—	—
Louisiana	—	2	4	13	20	—	0	3	—	—	—	0	1	—	—
Oklahoma	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Texas¶	60	38	191	510	711	—	0	15	—	—	—	0	2	—	—
Mountain	1	17	50	282	364	—	0	18	—	—	—	0	15	—	—
Arizona	—	0	0	—	—	—	0	13	—	—	—	0	9	—	—
Colorado¶	—	7	31	107	120	—	0	5	—	—	—	0	11	—	—
Idaho¶	N	0	0	N	N	—	0	0	—	—	—	0	1	—	—
Montana¶	—	3	28	72	72	—	0	0	—	—	—	0	0	—	—
Nevada¶	N	0	0	N	N	—	0	0	—	—	—	0	1	—	—
New Mexico¶	—	1	8	11	26	—	0	6	—	—	—	0	2	—	—
Utah	1	4	26	92	141	—	0	1	—	—	—	0	1	—	—
Wyoming¶	—	0	3	—	5	—	0	1	—	—	—	0	1	—	—
Pacific	1	2	16	54	23	—	0	8	—	—	—	0	6	—	—
Alaska	—	1	5	21	11	—	0	0	—	—	—	0	0	—	—
California	1	0	13	24	2	—	0	8	—	—	—	0	6	—	—
Hawaii	—	1	4	9	10	—	0	0	—	—	—	0	0	—	—
Oregon	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
Washington	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Territories															
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	2	8	3	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	8	30	49	112	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.
† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for California serogroup, eastern equine, Powassan, St. Louis, and western equine diseases are available in Table I.
§ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table, except starting in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm.
¶ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE III. Deaths in 122 U.S. cities,* week ending April 2, 2011 (13th week)

Reporting area	All causes, by age (years)						P&I†
	All Ages	≥65	45–64	25–44	1–24	<1	Total
New England	611	413	141	26	13	18	58
Boston, MA	154	92	42	9	7	4	18
Bridgeport, CT	33	25	5	2	—	1	4
Cambridge, MA	19	13	6	—	—	—	2
Fall River, MA	35	28	4	2	1	—	1
Hartford, CT	61	43	12	3	—	3	3
Lowell, MA	26	21	4	1	—	—	1
Lynn, MA	6	4	2	—	—	—	1
New Bedford, MA	27	19	8	—	—	—	2
New Haven, CT	35	21	11	2	1	—	1
Providence, RI	68	42	19	2	1	4	8
Somerville, MA	1	1	—	—	—	—	—
Springfield, MA	53	33	11	4	—	5	7
Waterbury, CT	31	26	4	—	1	—	1
Worcester, MA	62	45	13	1	2	1	9
Mid. Atlantic	1,961	1,392	418	91	28	29	116
Albany, NY	58	38	17	—	1	2	5
Allentown, PA	19	14	3	1	1	—	3
Buffalo, NY	83	59	16	5	3	—	7
Camden, NJ	19	12	4	2	—	1	2
Elizabeth, NJ	15	7	6	2	—	—	2
Erie, PA	51	37	10	3	1	—	4
Jersey City, NJ	18	10	5	3	—	—	1
New York City, NY	1,048	764	215	42	11	15	53
Newark, NJ	24	10	9	3	2	—	1
Paterson, NJ	28	16	7	3	2	—	—
Philadelphia, PA	196	118	56	12	4	6	6
Pittsburgh, PA§	39	26	9	2	1	1	—
Reading, PA	37	30	3	1	1	—	5
Rochester, NY	94	68	20	4	—	2	9
Schenectady, NY	25	22	2	1	—	—	6
Scranton, PA	23	17	5	1	—	—	—
Syracuse, NY	116	93	17	4	1	1	10
Trenton, NJ	34	23	9	1	—	1	1
Utica, NY	16	13	2	1	—	—	1
Yonkers, NY	18	15	3	—	—	—	—
E.N. Central	2,256	1,494	560	128	38	36	198
Akron, OH	52	34	11	3	—	4	8
Canton, OH	38	25	11	2	—	—	6
Chicago, IL	219	143	52	20	4	—	17
Cincinnati, OH	99	54	33	6	4	2	9
Cleveland, OH	259	179	70	6	—	4	17
Columbus, OH	366	239	89	20	9	9	46
Dayton, OH	161	115	35	8	2	1	9
Detroit, MI	200	120	52	18	7	3	12
Evansville, IN	50	38	10	2	—	—	2
Fort Wayne, IN	88	62	19	4	2	1	5
Gary, IN	12	9	—	2	1	—	1
Grand Rapids, MI	69	49	14	2	1	3	7
Indianapolis, IN	248	148	72	17	6	5	23
Lansing, MI	17	13	3	1	—	—	1
Milwaukee, WI	79	50	27	1	1	—	6
Peoria, IL	44	25	14	3	—	2	8
Rockford, IL	54	43	7	3	1	—	1
South Bend, IN	74	47	18	8	—	1	7
Toledo, OH	76	57	18	—	—	1	7
Youngstown, OH	51	44	5	2	—	—	6
W.N. Central	715	446	197	35	13	23	61
Des Moines, IA	75	52	19	3	1	—	7
Duluth, MN	U	U	U	U	U	U	U
Kansas City, KS	27	16	7	2	—	2	1
Kansas City, MO	111	71	22	8	3	7	9
Lincoln, NE	37	24	12	1	—	—	3
Minneapolis, MN	U	U	U	U	U	U	U
Omaha, NE	98	68	26	2	—	2	8
St. Louis, MO	285	156	95	15	8	10	24
St. Paul, MN	U	U	U	U	U	U	U
Wichita, KS	82	59	16	4	1	2	9
S. Atlantic	1,260	795	353	60	25	26	90
Atlanta, GA	188	113	49	17	7	2	11
Baltimore, MD	147	78	55	8	3	3	13
Charlotte, NC	110	79	25	3	1	2	12
Jacksonville, FL	167	107	47	7	3	3	10
Miami, FL	93	66	24	1	1	1	8
Norfolk, VA	49	31	11	4	2	1	2
Richmond, VA	61	29	28	1	1	1	2
Savannah, GA	57	32	18	4	1	2	1
St. Petersburg, FL	65	43	14	3	1	4	4
Tampa, FL	211	148	47	9	2	5	14
Washington, D.C.	97	62	27	3	3	2	11
Wilmington, DE	15	7	8	—	—	—	2
E.S. Central	1,010	665	242	74	15	14	81
Birmingham, AL	205	127	54	16	4	4	15
Chattanooga, TN	79	60	12	6	1	—	6
Knoxville, TN	127	83	30	10	3	1	14
Lexington, KY	76	50	19	5	—	2	7
Memphis, TN	193	131	47	11	2	2	16
Mobile, AL	144	87	37	16	1	3	14
Montgomery, AL	47	37	9	1	—	—	4
Nashville, TN	139	90	34	9	4	2	5
W.S. Central	1,271	827	271	101	31	39	77
Austin, TX	99	65	21	9	—	4	10
Baton Rouge, LA	73	53	14	4	1	1	—
Corpus Christi, TX	63	37	11	8	4	3	5
Dallas, TX	216	131	54	10	12	7	11
El Paso, TX	88	64	18	2	1	3	4
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	179	98	35	31	2	13	12
Little Rock, AR	86	52	21	7	3	3	1
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	278	188	58	23	6	3	22
Shreveport, LA	74	50	17	3	2	2	6
Tulsa, OK	115	89	22	4	—	—	6
Mountain	1,256	859	274	80	29	12	120
Albuquerque, NM	147	99	36	9	2	1	19
Boise, ID	55	48	5	1	1	—	6
Colorado Springs, CO	75	50	18	5	1	1	8
Denver, CO	131	86	34	4	5	2	9
Las Vegas, NV	282	208	55	15	3	1	35
Ogden, UT	37	23	10	4	—	—	5
Phoenix, AZ	199	114	57	20	3	3	13
Pueblo, CO	26	21	5	—	—	—	1
Salt Lake City, UT	134	87	23	11	9	4	14
Tucson, AZ	170	123	31	11	5	—	10
Pacific	1,598	1,135	334	81	32	16	154
Berkeley, CA	18	11	6	1	—	—	3
Fresno, CA	110	80	21	7	2	—	10
Glendale, CA	27	21	4	2	—	—	2
Honolulu, HI	90	65	16	3	3	3	11
Long Beach, CA	67	47	14	5	1	—	7
Los Angeles, CA	272	178	62	19	8	5	29
Pasadena, CA	26	20	3	2	1	—	2
Portland, OR	111	76	28	6	1	—	5
Sacramento, CA	221	160	47	11	2	1	29
San Diego, CA	133	96	31	4	1	1	17
San Francisco, CA	U	U	U	U	U	U	U
San Jose, CA	167	123	33	4	6	1	10
Santa Cruz, CA	39	28	9	1	—	1	4
Seattle, WA	122	85	23	6	5	3	8
Spokane, WA	70	56	9	4	—	1	8
Tacoma, WA	125	89	28	6	2	—	9
Total¶	**11,938**	**8,026**	**2,790**	**676**	**224**	**213**	**955**

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.

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format. To receive an electronic copy each week, visit MMWR's free subscription page at *http://www.cdc.gov/mmwr/mmwrsubscribe.html*. Paper copy subscriptions are available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone 202-512-1800.

Data presented by the Notifiable Disease Data Team and 122 Cities Mortality Data Team in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. Address all inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333 or to *mmwrq@cdc.gov.*

☆ U.S. Government Printing Office: 2011-723-011/21039 Region IV ISSN: 0149-2195