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Nonfatal Bathroom Injuries Among Persons Aged ≥15 Years — United States, 2008

In 2008, approximately 21.8 million persons aged ≥15 years sustained nonfatal, unintentional injuries (*1*), resulting in approximately $67.3 billion in lifetime medical costs (*2*). Information about where injuries occur is limited, but bathrooms commonly are believed to be a particularly hazardous location (*3*). To investigate this assumption, CDC analyzed data from a nationally representative sample of emergency departments (EDs) to describe the incidence and circumstances of nonfatal injuries in bathrooms (in any setting) among persons aged ≥15 years in the United States. This report describes the results of that investigation, which found that, based on 3,339 cases documented in the 2008 National Electronic Surveillance System All Injury Program (NEISS-AIP) database, an estimated 234,094 nonfatal bathroom injuries were treated in U.S. EDs. Injury rates increased with age, and most injuries (81.1%) were caused by falls. All persons, but especially older adults, should be aware of bathroom activities that are associated with a high risk for injury and of environmental modifications that might reduce that risk.

This study used 2008 data from a nationally representative stratified probability sample of 62 hospital EDs in the United States, available from NEISS-AIP, which collects data on initial visits for all injuries treated in these EDs. Trained NEISS-AIP coders abstract information from the ED medical record about the principal diagnosis for each case, which, if more than one injury is recorded, usually is the most severe. Data include age, sex, primary diagnosis (using a system developed by the Consumer Product Safety Commission [CPSC] that is compatible with but does not include *International Classification of Diseases, Ninth Revision, Clinical Modification* [ICD-9-CM] codes), primary part of the body injured, disposition at discharge, up to two CPSC product codes* (determined by the coders based on the account of the injury in the medical record), and a two-line summary narrative describing the circumstances of the injury.

CDC examined unintentional, nonfatal bathroom injuries among persons aged ≥15 years and identified the types of injuries, most common locations within the bathroom, and the precipitating events. Potentially eligible cases were among persons aged ≥15 years whose NEISS-AIP record contained a CPSC product code for products associated with bathrooms or whose case narrative included the words "bath," "shower," "tub," "commode," "toilet," or "potty chair."

The screening procedure identified 3,635 potential cases. After review, 296 were excluded because the injuries were work-related, involved repairing or remodeling the bathroom, were not related to bathroom products or activities, or could not be determined to have occurred in the bathroom, leaving 3,339 cases for analysis.

Based on the narrative for each case, two additional variables were coded: the location in the bathroom where the injury

* Product codes included bathtub or shower enclosures (0609, 0610, 4030); bathtubs or showers (0611); draperies, curtains, or shower curtains (0617); sinks (0648); toilets (including adult potty chairs) (0649); towel racks or bars (0657); faucets or spigots (0699); and potty chairs or training seats (1535).

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occurred (e.g., bathtub, shower, or sink) and the precipitating event (e.g., bathing or showering, slipped, sitting down, or using the toilet). "Bathing or showering" did not include slipping in the tub or shower; these events were coded as "slipped." However, events such as "slipped while getting into (or out of) the shower" were coded as "getting into (or out of) the tub or shower" because these activities were considered *a priori* to be particularly hazardous.

Data were weighted to represent the total number of initial injury-related visits each year in the United States, and estimates were adjusted for hospital nonresponse and changes in the number of ED visits from year to year. The final weights of the cases were summed to produce national estimates. Rates per 100,000 population were calculated using U.S. Census Bureau population estimates for 2008; 95% confidence intervals (CIs) were calculated using statistical software that accounted for the sample weights and the complex sampling design. Estimates based on <20 cases or with coefficients of variation >30% were considered unstable, and the rates and CIs are not reported. P-values of ≤0.05 were considered statistically significant.

In 2008, an estimated 234,094 nonfatal bathroom injuries among persons aged ≥15 years were treated in U.S. EDs, for an injury rate of 96.4 per 100,000 population. The rate for women was 121.2 per 100,000 and was 72% higher than the rate for men (70.4 per 100,000) (Table 1). Although approximately the same number of cases occurred in each 10-year age group, injury rates increased with age. Falls were the most common primary cause of injury (81.1%), and the most frequent diagnosis was contusions or abrasions (29.3%). The head or neck was the most common primary part of the body injured (31.2%). Most patients (84.9%) were treated and released from the ED; 13.7% were treated in the ED and subsequently hospitalized.

The highest rates were for injuries that occurred in or around the tub or shower (65.8 per 100,000) and injuries that happened on or near the toilet (22.5 per 100,000) (Table 2). The precipitating events in 37.3% of injuries were bathing (excluding slipping while bathing), showering, or getting out of the tub or shower; only 2.2% occurred while getting into the tub or shower. The precipitating event for 17.3% of injuries was slipping, which included slipping while bathing; 14.1% occurred when standing up from, sitting down on, or using the toilet; and 5.5% were attributed to an antecedent loss of consciousness.

Injury rates increased with age, especially those that occurred on or near the toilet, which increased from 4.1 per 100,000 among persons aged 15–24 years to 266.6 among persons aged ≥85 years. Injuries occurring in or around the tub or shower also increased markedly, from 49.7 per 100,000 among persons aged 15–24 years to 200.2 among persons aged ≥85 years. Within each 10-year age category, the relative proportion of injuries differed by location within the bathroom. The proportion of injuries in or around the tub or shower was highest among persons aged 15–24 years (84.5%) and lowest among

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persons aged ≥85 years (38.9%), whereas the proportion of injuries that happened on or near the toilet was lowest among persons aged 15–24 years (7.0%) and highest among persons aged ≥85 years (51.7%).

Within age categories, the relative proportion of injuries also differed by precipitating event (or activity). Among persons aged 15–24 years, the percentage of injuries that occurred while bathing or showering was 34.3% (rate 20.2 per 100,000), whereas among persons aged ≥85 years, the percentage of injuries occurring while bathing or showering was 15.5% (rate 79.9). In contrast, the proportion of injuries that occurred when getting on, off, or using the toilet was lowest among persons aged 15–24 years (2.0%) and increased with age, reaching 19.3% among persons aged 65–74 years, 26.9% among persons aged 75–84 years, and 36.9% among persons aged ≥85 years. Injury rates were 1.2, 21.6, 64.8, and 190.1 per 100,000 for age groups 15–24, 65–74, 75–84, and ≥85 years, respectively.

The injury rate associated with syncope or loss of consciousness was low. For most age groups, it accounted for fewer than 7.0% of injuries and ranged from 3.6% among persons aged 25–34 years to 9.4% among persons aged 15–24 years.

The leading injury diagnoses were contusions or abrasions (29.3%), strain or sprain (19.6%), and fracture (17.4%). The age-specific rate for contusions or abrasions increased from 13.5 per 100,000 (aged 15–24 years) to 157.9 (aged ≥85 years), whereas rates for strains and sprains increased only slightly with age. In contrast, the fracture rate increased markedly, from 5.8 per 100,000 (aged 25–34 years) to 165.6 (aged ≥85 years). Hospitalization rates, which could be calculated only for persons aged ≥55 years, followed a similar pattern (lowest among persons aged 55–64 years [11.9 per 100,000] and highest among persons aged ≥85 years [197.4]).

TABLE 1. Nonfatal bathroom injuries among persons aged ≥15 years treated in hospital emergency departments, by patient and injury characteristics — United States, 2008

Characteristic	No. in sample	Weighted no.	%	Rate*	(95% CI)
Total	**3,339**	**234,094**	**100.0**	**96.4**	**(78.8–113.9)**
Sex					
Male	1,217	83,489	35.7	70.4	(56.7–84.0)
Female	2,122	150,605	64.3	121.2	(99.3–143.1)
Age group (yrs)					
15–24	398	25,023	10.7	58.8	(46.2–71.4)
25–34	439	29,919	12.8	73.1	(53.5–92.7)
35–44	449	32,322	13.8	76.0	(57.8–94.3)
44–54	493	34,851	14.9	70.5	(65.1–92.0)
55–64	408	28,553	12.2	84.8	(68.3–101.3)
65–74	314	22,555	9.6	112.1	(86.0–138.1)
75–84	447	31,387	13.4	241.0	(188.1–293.9)
≥85	391	29,484	12.6	515.3	(366.7–663.9)
Primary cause of injury					
Fall	2,696	189,928	81.1	78.2	(63.1–92.9)
Overexertion	293	22,063	9.4	9.1	(6.9–11.2)
Struck by or against	224	15,039	6.4	6.2	(4.7–7.6)
Cut or pierce	45	2,698	1.2	1.1	(0.7–1.5)
Fire or burn	23	1,410	0.6	0.6	(0.3–0.9)
Drowning or near drowning†	0	0	0.0	—	—
Other or unspecified	58	2,956	1.3	1.2	(0.8–1.7)
Primary injury diagnosis					
Contusions or abrasions	937	68,674	29.3	28.3	(23.1–33.4)
Strain or sprain	658	45,994	19.6	18.9	(14.6–23.3)
Fracture	581	40,699	17.4	16.8	(13.1–20.4)
Laceration	498	35,031	15.0	14.4	(10.9–18.0)
Internal injury	335	21,519	9.2	8.9	(6.3–11.4)
Concussion	61	3,653	1.6	1.5	(0.9–2.1)
Burn or scald†	19	1,177	0.5	—	—
Other	250	17,347	7.4	7.1	(4.5–9.7)
Primary part of body injured					
Head or neck	1,069	73,072	31.2	30.1	(23.6–36.5)
Lower trunk	656	47,131	20.1	19.4	(15.1–23.7)
Upper trunk	606	42,824	18.3	17.6	(14.9–20.3)
Leg or foot	582	40,696	17.4	16.8	(13.5–20.0)
Arm or hand	411	29,713	12.7	12.2	(9.3–15 .2)
Other or unknown†	15	657	0.3	—	—
Disposition					
Treated and released	2,835	198,730	84.9	81.8	(68.8–94.8)
Hospitalized§	466	32,030	13.7	13.2	(8.6–17.8)
Other or unknown†	38	3,334	1.4	—	—

Abbreviation: CI = confidence interval.
* Per 100,000 population.
† Estimates based on sample sizes <20 or with coefficients of variation >30% might be unstable.
§ Includes transfer to another medical facility.

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Editorial Note

This is the first report to describe the incidence and circumstances of nonfatal bathroom injuries among persons aged ≥15 years in the United States. In 2008, an estimated 234,094 unintentional nonfatal injuries among persons aged ≥15 years occurred in bathrooms, for an injury rate of 96.4 per 100,000 population. This represented approximately 1% of the nearly 22 million nonfatal injuries among this age group treated in EDs that year. However, the impact was greater among persons aged ≥65 years. Among this population, bathroom injuries represented 2.5% of all unintentional injuries.

Injury rates were higher in women. Studies consistently have shown that women are at higher risk than men for falling and for sustaining fall-related injuries (*4*). This difference might be

TABLE 2. Nonfatal bathroom injuries among persons aged ≥15 years treated in hospital emergency departments, by injury location and precipitating event — United States, 2008

Characteristic	No. in sample	Weighted no.	%	Rate*	(95% CI)
Injury location					
Bathtub or shower	2, 348	159, 818	68.3	65.8	(53.8–77.8)
Toilet	736	54, 696	23.4	22.5	(17.2–27.8)
Sink	38	2, 906	1.2	1.2	(0.7–1.7)
Bathroom (not otherwise specified)	204	15, 628	6.7	6.4	(4.5–8.4)
Other†	13	1, 046	0.4	—	—
Precipitating event					
Bathing or showering	995	64, 436	27.5	26.5	(22.2–30.9)
Slipped	585	40, 450	17.3	16.7	(11.4–21.9)
Standing up from, sitting down on, or using the toilet	433	33, 052	14.1	13.6	(10.1–17.1)
Getting out of tub or shower	327	23, 055	9.8	9.5	(7.1–11.8)
Loss of consciousness	171	12, 872	5.5	5.3	(3.5–7.1)
Getting into shower or tub	67	5, 062	2.2	2.1	(1.3–2.9)
Transferring§	49	3, 426	1.5	1.4	(1.0–1.9)
Tripped	40	2, 061	0.9	0.8	(0.5–1.2)
Running or playing†	1	8	0.0	—	—
Other	156	10, 571	4.5	4.4	(3.4–5.3)
Not specified	515	39, 102	16.7	16.1	(13.2–19.0)

Abbreviation: CI = confidence interval.
* Per 100,000 population.
† Estimates based on sample sizes <20 or with coefficients of variation >30% might be unstable.
§ Defined as moving between a wheelchair or walker and the toilet, sink, shower, or tub.

related to gender differences in physical activity, lower-body strength, bone mass, circumstances surrounding the fall, or greater willingness to seek medical treatment (*5*).

Approximately 80% of all bathroom injuries were caused by falls, with the highest injury rates in the oldest age groups. For adults aged ≥65 years, falls often cause serious injuries, such as hip fractures, attributed in part to osteoporosis, a metabolic disease that makes bones porous and susceptible to fracture (*6*). This study found that older adults had the highest fracture rates and were hospitalized most often.

For all ages, the most hazardous activities were bathing, showering, or getting out of the tub or shower. Approximately two thirds of all injuries occurred in the tub or shower, and approximately half were precipitated by bathing or showering, slipping, or getting out of the tub or shower. Only 2% of injuries occurred while getting into the tub or shower, when bathroom fixtures and floors likely would be less slippery. According to the Home Safety Council's 2004 *The State of Home Safety in America* report (*7*), 63% of U.S. homes used bathtub mats or nonskid strips to help reduce bathtub falls, but only 19% of homes had grab bars. The study described in this report included all settings; however, bathrooms in assisted-living facilities and nursing homes likely would have grab bars, whereas private homes likely would not.

Injuries associated with getting into and out of the tub or shower occurred among persons of all ages, suggesting that adding grab bars both inside and outside the tub or shower might help prevent bathroom injuries to all household residents. Overall, approximately 14% of injuries were associated with standing up from, sitting down on, or using the toilet, but among persons aged ≥65 years, the proportion ranged from 19% to 37%. Although less than 3% of older adult injuries were attributed to loss of consciousness, the injuries among persons aged ≥65 years associated with using the toilet might be attributed in part to vasovagal syncope. This condition is a common cause of fainting and can be brought about by urinating, having a bowel movement, or abdominal straining (*8*). Standing after prolonged sitting also can result in postural hypotension, a sudden drop in blood pressure that causes light-headedness or dizziness. Postural hypotension, which also might be caused by dehydration or as a side effect of medication, is a known risk factor for falls (*6*). Preventing falls and subsequent injuries in this vulnerable older population is critical. Persons with postural hypotension can reduce symptoms by standing up slowly; installing grab bars near the toilet would provide an additional measure of safety. Effective fall prevention strategies for older adults include exercises to improve strength and balance and medication review and modification by a health-care provider (*9*).

Loss of consciousness was reported as a precipitating event by 9.4% of persons aged 15–24 years. Although alcohol use is poorly documented in NEISS-AIP, a New Zealand study reported that approximately 20% of unintentional falls among working-age adults were attributable to alcohol consumption (*10*). Better data are needed to clarify the contribution of alcohol use to bathroom injuries among various age groups.

The findings in this report are subject to at least five limitations. First, this study included only injuries treated in EDs and not injuries treated in physicians' offices or other outpatient settings or injuries that did not receive medical attention. However, the majority of serious injuries probably were included because most major injuries are treated in EDs. Second, information about the circumstances surrounding the injury was limited to the two-line narrative, which did not always contain complete information. Nearly 17% of injuries could not be attributed to a specific precipitating event based on data in the NEISS-AIP record. Third, injuries that proved fatal before or in the ED were excluded because NEISS-AIP does not provide detailed information about fatal injuries. However, only approximately 0.5% of unintentional injuries result in death (*1*). Fourth, NEISS-AIP included only one injury (generally the most severe) and one part of the body injured. Some underreporting might occur if there were

What is already known on this topic?

Each year, approximately 2.2 million persons aged ≥15 years sustain unintentional, nonfatal injuries, costing approximately $67.3 billion in lifetime medical costs. Although only limited information is available regarding where injuries occur, bathrooms are commonly believed to be a hazardous location.

What is added by this report?

In 2008, an estimated 234,094 bathroom injuries (or 1% of all unintentional injuries among persons aged ≥15 years) were treated in hospital emergency departments. The rate of unintentional injuries that occurred in bathrooms increased with age and was highest for persons aged ≥85 years. These results suggest that bathrooms tend to be most hazardous for persons in the oldest age groups.

What are the implications for public health practice?

Persons in all age categories sustained bathroom injuries, especially when bathing or showering or when getting out of the tub or shower. Raising awareness about potentially hazardous activities and making a number of simple environmental changes, such as installing grab bars inside and outside the tub or shower and next to toilets, could benefit all household residents by decreasing the risk for injury.

multiple injuries. Finally, because ICD-9-CM diagnosis codes were not included in the medical record at the time these data were collected, specific injuries (e.g., hip fracture, spinal cord injury, or traumatic brain injury) could not be identified.

These findings suggest that all adults, especially older adults, their caregivers, and their family members, should be educated about activities in the bathroom that more frequently result in injury, notably getting out of tubs and showers and getting on and off toilets. Injuries might be reduced through environmental modifications, such as putting non-slip strips in the tub or shower and adding grab bars inside and outside the tub or shower to reduce falls, and installing grab bars next to the toilet for added support if needed. However, more research is needed to determine how effective grab bars and other environmental modifications might be in preventing bathroom injuries. Increasing awareness of potentially hazardous activities in the bathroom, combined with these simple environmental changes, could benefit all household residents by decreasing the risk for injury.

References

1. CDC. Web-based Injury Statistics Query and Reporting System (WISQARS). Available at http://www.cdc.gov/injury/wisqars/index.html. Accessed April 6, 2011.
2. Finkelstein EA, Corso PS, Miller TR. Incidence and economic burden of injuries in the United States. New York, NY: Oxford University Press; 2006.
3. Span P. The most dangerous room in the house? New York Times. May 28, 2009. Available at http://newoldage.blogs.nytimes.com/2009/05/28/the-most-dangerous-room-in-the-house. Accessed April 6, 2011.
4. Stevens JA, Sogolow ED. Gender differences for nonfatal unintentional fall-related injuries. Inj Prev 2005;11:115–9.
5. Macintyre S, Hunt K, Sweeting H. Gender differences in health: are things really as simple as they seem? Soc Sci Med 1996;42:617–24.
6. Rubenstein LZ, Josephson KR. The epidemiology of falls and syncope. Clin Geriatr Med 2002;18:141–58.
7. Home Safety Council. State of home safety in America. Available at http://www.homesafetycouncil.org/aboutus/research/re_sohs_w001.asp. Accessed April 6, 2011.
8. Tan MP, Parry S. Vasovagal syncope in the older patient. J Am Coll Cardiol 2008;51:599–606.
9. Gillespie LD, Robertson MC, Gillespie WJ, et al. Interventions for preventing falls in older people living in the community. Cochrane Database Syst Rev 2009;(2):CD007146.
10. Kool B, Ameratunga S, Robinson E, Crengle S, Jackson R. The contribution of alcohol to falls at home among working-aged adults. Alcohol 2008:42:383–8.

Ocular Toxocariasis — United States, 2009–2010

Ocular toxocariasis (OT) is caused by the zoonotic parasites *Toxocara canis* and *Toxocara cati*, roundworms of dogs and cats. Persons become infected with *Toxocara* when they unintentionally ingest embryonated eggs that have been shed in the feces of infected animals. Although OT is uncommon, it most often affects young children and can cause debilitating ophthalmologic disease, including blindness. Previous studies of OT in the United States have been conducted in single institutions (*1–4*). This report describes the results of a web-based survey distributed to uveitis, retinal, and pediatric ophthalmology specialists nationwide to collect epidemiologic, demographic, and clinical information on patients with OT. A total of 68 patients were newly diagnosed with OT from September 2009 through September 2010. Among the 44 patients for whom demographic information was available, the median patient age was 8.5 years (range: 1–60 years), and 25 patients (57%) lived in the South at the time of diagnosis. Among 30 patients with reported clinical data, the most common symptom was vision loss, reported by 25 (83%) patients; of these, 17 (68%) suffered permanent vision loss. The results of this first national level survey demonstrate that OT transmission continues to occur in the United States, frequently affecting children and causing permanent vision loss in the majority of reported patients. Good hygiene practices, timely disposal of pet feces, and routine deworming of pets are strategies necessary to reduce OT in humans.

In collaboration with the American Academy of Ophthalmology (AAO), a web-based survey was distributed to currently practicing ophthalmologists belonging to the American Uveitis Society (AUS), the American Society of Retina Specialists (ASRS), or the American Association for Pediatric Ophthalmology and Strabismus (AAPOS). Each ophthalmologist reported how many patients with OT were examined from September 2009 through September 2010. An OT patient was defined as a person who had a new clinical diagnosis of OT based on ophthalmologic signs and symptoms. Ophthalmologists were asked to provide epidemiologic, demographic, clinical, diagnostic, and treatment data for each OT patient.

Of the 3,020 ophthalmology specialists surveyed, 599 (19%) responded; of these, 67% were pediatric ophthalmologists, 18% were retinal specialists, and 15% were uveitis specialists. OT patients were classified as newly diagnosed if first diagnosed with OT from September 2009 through September 2010. A total of 68 newly diagnosed OT patients were reported. OT patients lived in 23 different states, the District of Columbia, and Puerto Rico (Table 1). Twenty-five of 44 (57%) OT patients lived in the South, and 21 of 33 (64%) owned a pet (Table 2). Clinical data were reported for 30 OT patients. Vision loss was observed in 25 (83%) of these 30 OT patients, 17 (68%) of whom had permanent vision loss (Table 3). Three of the top five most commonly reported ophthalmologic signs (subretinal granulomatous mass/scar, posterior pole granuloma, and peripheral granuloma with traction bands) are indicative of permanent injury to the eye (*5*). Fourteen of 20 (70%) OT patients who had serum enzyme-linked immunosorbent assay (ELISA) testing for antibody to the *Toxocara* parasite completed had a positive test result. Corticosteroid treatment was prescribed for 11 of 12 (92%) OT patients, whereas seven of 28 (25%) OT patients underwent ophthalmologic procedures, including pars plana vitrectomy, scleral buckling, and cataract surgery, in an attempt to improve their vision.

TABLE 1. Number of patients with newly diagnosed ocular toxocariasis (N = 68), by state/area — United States, 2009–2010

State/Area	No. of patients
Georgia	9
Florida	8
California	6
Texas	6
Alabama	5
District of Columbia	3
Illinois	3
New York	3
South Carolina	3
Arkansas	2
Connecticut	2
Indiana	2
Maryland	2
Nevada	2
Virginia	2
Iowa	1
Louisiana	1
North Carolina	1
Ohio	1
Oklahoma	1
Oregon	1
Pennsylvania	1
Puerto Rico	1
Tennessee	1
West Virginia	1

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TABLE 2. Number and percentage of patients with newly diagnosed ocular toxocariasis (N = 68), by selected characteristics — United States, 2009–2010

Characteristic	No. of patients*	(%)†
Age (yrs) (n = 44)		
Mean	15.5	
Median	8.5	
Range	1–60	
Sex (n = 43)		
Male	24	(56)
Female	19	(44)
Race (n = 43)		
White	30	(70)
Black	8	(19)
Asian/Pacific Islander	4	(9)
American Indian/Alaska Native	1	(2)
Ethnicity (n = 41)		
Hispanic	7	(17)
Non-Hispanic	34	(83)
Region§ (n = 44)		
Northeast	6	(14)
Midwest	5	(11)
South	25	(57)
West	8	(18)
Environment (n = 40)		
Urban	12	(30)
Rural	7	(18)
Suburban	16	(40)
Mixed	5	(12)
Pet ownership (n = 33)	21	(64)
Type of pet (n = 21)		
Dog	9	(43)
Cat	6	(29)
Dog and cat	5	(24)
Unknown	1	(5)
Health insurance coverage (n = 43)		
Private	18	(42)
Medicare	16	(37)
Medicaid	0	—
Uninsured	3	(8)
Unknown	6	(14)

* Because of missing data, the number of respondents for selected characteristics varies.
† Percentages might not sum to 100% because of rounding.
§ U.S. Census regions. Additional information available at http://www.census.gov/geo/www/us_regdiv.pdf.

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Editorial Note

Dogs and cats are the respective definitive hosts for the zoonotic parasites *T. canis* and *T. cati*. Infected dogs or cats pass unembryonated eggs in their feces; after 2 to 4 weeks in the environment, the eggs embryonate and become infectious. If embryonated eggs are consumed unintentionally by humans, the *Toxocara* larvae emerge and are able to migrate throughout the body, causing severe systemic reactions. *Toxocara* infection in humans occurs most commonly through ingestion of contaminated soil. *Toxocara* is found in all regions of the United States; however, development of *Toxocara* larvae does not occur below 50°F (10°C), making soil in warmer climates more conducive to contamination with infectious *Toxocara* eggs (*5*).

Children are especially at risk for infection from exposure to playgrounds and sandboxes contaminated by dog or cat feces (*6–7*). Several case studies have documented a clinical ocular manifestation with severe vision impairment in children (*1–4*). Previous studies of OT in the United States have been conducted within single institutions, with only one multicenter survey performed in 1987 in Alabama, which indicated an estimated statewide prevalence of one per 1,000 persons (*8*). Testing data for a representative sample of the U.S. population aged ≥6 years from the Third National Health and Nutrition Examination Survey (NHANES III) demonstrated an overall prevalence of 13.9% positive for antibodies to *Toxocara*; however, serologic testing does not reliably indicate active infection, nor does a negative test result rule out *Toxocara* infection (*9*).

Treatment of OT is aimed at reducing inflammation through the use of corticosteroids and antihelminthics; various ophthalmologic surgical procedures may be used to minimize complications from severe disease. However, data are limited regarding optimal treatment strategies, and irreversible ocular damage has already occurred in most OT patients by the time they are examined by an ophthalmologist. The survey described in this report was conducted in an effort to better understand the impact of toxocariasis in the United States by

TABLE 3. Number and percentage of patients with newly diagnosed ocular toxocariasis (N = 68), by signs and symptoms present at examination — United States, 2009–2010

Signs/Symptoms	No. of patients*	(%)†
Signs (n = 32)		
Subretinal granulomatous mass/scar	20	(65)
Vitritis	16	(55)
Scotoma	10	(50)
Posterior pole granuloma	13	(42)
Peripheral granuloma with traction bands	12	(39)
Active chorioretinitis	11	(34)
Retinal detachment	9	(28)
Strabismus	8	(27)
Anterior uveitis	8	(25)
Leukocoria	4	(15)
Diffuse nematode endophthalmitis	2	(6)
Symptoms (n = 37)		
Vision loss	25	(83)
Permanent	17	(68)
Temporary	7	(28)
Unknown	1	(<1)
Floaters	13	(38)
Eye redness	12	(32)
Photophobia	10	(27)
Eye pain	7	(19)

* Because of missing data, the number of respondents for selected characteristics varies.
† Percentages might not sum to 100% because of rounding.

What is already known on this topic?

Ocular toxocariasis (OT) is a zoonotic parasitic infection of cats and dogs that can lead to debilitating ophthalmologic disease in humans.

What is added by this report?

Transmission of *Toxocara* continues to occur in the United States. OT is a cause of preventable vision loss primarily affecting children.

What are the implications for public health practice?

Preventing transmission of *Toxocara* by good hygiene practices, prompt disposal of pet feces, and routine deworming of pets can reduce the number of children with vision loss caused by OT.

collecting information on OT, which is readily diagnosed by clinical presentation.

The findings in this report are subject to at least three limitations. First, the response rate (19%) of survey respondents was low, which likely is attributable to the significant amount of time required to access and abstract the patients' medical records for the requested data and to complete the survey. Ophthalmologists who did not have OT patients likely elected not to participate in the survey, which also might have contributed to the low response rate. Second, the results might be subject to responder bias because the surveyed ophthalmologic subspecialists might be more likely to report more severe disease, which might contribute to the underrepresentation of patients with mild OT clinical manifestations. Finally, the findings might be subject to selection bias because persons with limited access to health care might not have access to subspecialty ophthalmologic care. All three limitations likely would contribute to underreporting of OT patients.

Prevention of toxocariasis requires a One Health approach,* incorporating the collaboration of groups invested in protecting the health of humans, animals, and the environment. Good hygiene practices, such as hand washing, should be encouraged especially after contact with pets or areas at high risk for soil contamination, such as playgrounds and sandboxes. Health-care providers should be aware of clinical manifestations of toxocariasis and educate their patients at risk, especially children, about avoiding exposure to potentially contaminated soil and preventing infection in their pets. Veterinarians should encourage pet owners to immediately dispose of dog and cat feces and to have their pets regularly tested for parasitic infections and dewormed. Controlling *Toxocara* infection in dogs and cats and preventing exposure of persons to possible sources of infection will prevent infection and decrease morbidity associated with *Toxocara*. Additional information about toxocariasis is available at http://www.cdc.gov/parasites/toxocariasis.

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* The One Health initiative seeks to improve the health of all humans and animals through the integration of human medicine, veterinary medicine, and environmental science. Additional information available at http://www.onehealthinitiative.com.

Acknowledgment

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References

1. Schantz PM, Weis PE, Pollard ZF, White MC. Risk factors for toxocaral ocular larva migrans: a case-control study. Am J Public Health 1980;70:1269–72.
2. Good B. Ocular toxocariasis in schoolchildren. Clin Infect Dis 2004;39:173–8.
3. Stewart JM, Cubillan LD, Cunningham ET. Prevalence, clinical features, and causes of vision loss among patients with ocular toxocariasis. Retina 2005;25:1005–13.
4. Taylor MR. The epidemiology of ocular toxocariasis. J Helminthol 2001;75:109–18.
5. Despommier D. Toxocariasis: clinical aspects, epidemiology, medical ecology, and molecular aspects. Clin Microbiol Rev 2003;16:265–72.
6. Dubin S, Segall S, Martindale J. Contamination of soil in two city parks with canine nematode ova including *Toxocara canis*: a preliminary study. Am J Public Health 1975;65:1242–5.
7. Hotez PJ, Wilkins PP. Toxocariasis: America's most common neglected infection of poverty and a helminthiasis of global importance? PLoS Negl Trop Dis 2009;3:e400.
8. Maetz HM, Kleinstein RN, Federico D, Wayne J. Estimated prevalence of ocular toxoplasmosis and toxocariasis in Alabama. J Infect Dis 1987;156:414.
9. Won KY, Kruszon-Moran D, Schantz PM, Jones JL. National seroprevalence and risk factors for Zoonotic *Toxocara* spp. infection. Am J Trop Med Hyg 2008;79:552–7.

Interim Results: State-Specific Influenza Vaccination Coverage — United States, August 2010–February 2011

The 2010–11 influenza season was unusual because it followed the 2009 influenza A pandemic (H1N1) season and it was the first season the Advisory Committee on Immunization Practices (ACIP) recommended influenza vaccination of all persons aged ≥6 months (*1*). The season also was notable because a record number of seasonal influenza vaccine doses (approximately 163 million) were distributed in the United States (*2*). To provide preliminary state-specific influenza vaccination coverage estimates, CDC analyzed Behavioral Risk Factor Surveillance System (BRFSS) data for adults aged ≥18 years and National Immunization Survey (NIS) data for children aged 6 months–17 years collected September 2010 through March 2011. By February 28, the preliminary national vaccination coverage estimate was 49.0% for children aged 6 months–17 years; among 43 states and the District of Columbia (DC), coverage ranged from 30.2% for adults aged 18–49 years to 68.6% for adults aged ≥65 years. The record high seasonal vaccination coverage achieved during 2009–10 (41.3%) among persons aged ≥6 months in 43 states and DC was sustained during the 2010–11 season (42.8%). Coverage for Hispanic and non-Hispanic black children increased by 11–12 percentage points from 2009–10 levels. Opportunity exists to improve coverage in all age groups, particularly among adults. To accomplish that, health departments and other nonoffice-based vaccination providers can increase access to vaccination at work and school locations, pharmacies and stores, and other nonmedical sites. In addition, physicians and clinics should implement proven strategies for improving vaccination coverage (e.g., office-based protocols, including reminder/recall notification and standing orders) (*3*).

CDC analyzed data collected September 2010–March 2011 from 43 states and DC for BRFSS and from all 50 states and DC for NIS. BRFSS respondents aged ≥18 years were asked if they had received an influenza vaccination in the past 12 months, and if so, in which month.* NIS respondents aged ≥18 years were asked whether their children had received an influenza vaccination since August, and if so, in which month.† The median state Council of American Survey and Research Organizations (CASRO) BRFSS response rate was 54.4% during the data collection timeframe. The NIS CASRO quarterly response rates ranged from 51.5% to 73.6% for landline and from 28.5% to 38.2% for cellular telephones.

To improve precision, Kaplan-Meier survival analysis of monthly interview data collected during September 2010–March 2011 was used to determine the cumulative proportion of persons vaccinated with ≥1 dose during August 2010–February 2011. BRFSS data were used to estimate coverage for adults aged ≥18 years (n = 199,452) and NIS data were used to estimate coverage for children aged 6 months–17 years (n = 88,580). Coverage for all persons aged ≥6 months was determined using combined child and adult state-level estimates weighted by the age-specific populations of each state.§ CDC performed Pearson correlations among children and among adults to determine whether state-specific coverage during 2010–11 was associated with coverage during the 2009–10 season. CDC also performed a Pearson correlation between 2010–11 child and adult estimates to determine whether coverage was associated between the two age groups. For children, estimated national seasonal coverage for 2010–11 was compared with 2009–10 national seasonal coverage (*4,5*). For adults and persons aged ≥6 months, to make valid comparisons across years, coverage for 2009–10 was restricted to the 43 states and DC with available data in 2010–11. Student *t* tests were used to determine statistical significance in differences between groups and between the 2009–10 and 2010–11 vaccination seasons.

Coverage by Age Group

Among children aged 6 months–17 years, estimated national coverage was 49.0%, 6.7 percentage points higher than 2009–10 national seasonal coverage (42.3%) (Table 1)

* Respondents were asked, "Now I will ask you questions about seasonal flu. A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a seasonal flu shot? During what month and year did you receive your most recent seasonal flu shot? The seasonal flu vaccine sprayed in the nose is also called FluMist. During the past 12 months, have you had a seasonal flu vaccine that was sprayed in your nose? During what month and year did you receive your most recent seasonal flu vaccine that was sprayed in your nose?" BRFSS is an ongoing, state-based, monthly telephone survey that collects information on health conditions and risk behaviors from approximately 400,000 randomly selected persons aged ≥18 years among the noninstitutionalized, U.S. civilian population. Interview data through March 2011 for seven states (California, Louisiana, Michigan, Nevada, Oklahoma, Oregon, and South Dakota) were not reported at the time of this publication and thus were not included. Additional information about BRFSS is available at http://www.cdc.gov/brfss.

† Respondents were asked, "Since August, 2010, has [child] had a flu vaccination? There are two types of flu vaccinations. One is a shot and the other is a spray, mist, or drop in the nose. During what month and year did [child] receive his/her flu vaccine? Was this a shot or the spray in the nose?" NIS is an ongoing, national landline list-assisted random-digit–dialed telephone survey of households with children aged 19–35 months or 13–17 years (NIS-Teen) at the time of interview. A supplemental cellular telephone sample was surveyed as part of the NIS. For children aged 6–18 months and 3–12 years identified during screening households for NIS and NIS-Teen, a short influenza vaccination module was added. Additional information about NIS is available at http://www.cdc.gov/nis.

§ For participants who indicated they had been vaccinated but had a missing month and year of vaccination, this information was imputed from donor pools matched for week of interview, age group, state of residence, and race/ethnicity.

TABLE 1. Estimated influenza vaccination coverage, by U.S. Department of Health and Human Services (HHS) region, state, and selected age and risk groups — Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey (NIS), United States, end of February 2011*

HHS region and state	Unweighted sample	All persons aged ≥6 mos		Children aged 6 mos–17 yrs		Persons aged ≥18 yrs	
		%§	(95% CI¶)	%	(95% CI)	%	(95% CI)
United States**	**288,032**	**42.8**	**(±0.5)**	**49.0**	**(±1.3)**	**40.9**	**(±0.6)**
Region 1	**37,582**	**49.3**	**(±1.3)**	**59.5**	**(±3.5)**	**46.5**	**(±1.4)**
Connecticut	5,653	47.6	(±2.7)	58.1	(±5.7)	44.5	(±3.1)
Maine	6,753	45.4	(±2.3)	52.8	(±7.7)	43.5	(±2.2)
Massachusetts	10,559	51.6	(±2.3)	61.5	(±6.3)	48.8	(±2.4)
New Hampshire	4,326	45.0	(±3.2)	49.1	(±9.2)	43.9	(±3.1)
Rhode Island	4,988	53.1	(±2.6)	76.8	(±5.3)	46.8	(±2.9)
Vermont	5,303	46.9	(±3.3)	50.2	(±10.4)††	46.0	(±3.1)
Region 2	**17,145**	**44.2**	**(±2.0)**	**53.5**	**(±3.6)**	**41.5**	**(±2.4)**
New Jersey	9,187	42.7	(±2.1)	57.8	(±5.8)	38.2	(±2.2)
New York	7,958	45.2	(±2.9)	51.4	(±4.4)	43.4	(±3.5)
Region 3	**30,021**	**45.8**	**(±1.6)**	**55.4**	**(±4.7)**	**43.1**	**(±1.6)**
Delaware	3,048	45.2	(±4.1)	51.6	(±11.4)††	43.2	(±4.1)
District of Columbia	3,449	44.0	(±4.5)	55.2	(±12.9)††	41.4	(±4.7)
Maryland	7,226	49.3	(±2.8)	60.7	(±7.1)	45.9	(±2.9)
Pennsylvania	7,618	42.8	(±2.9)	56.9	(±9.7)	38.9	(±2.5)
Virginia	5,156	47.8	(±3.1)	52.1	(±5.5)	46.5	(±3.7)
West Virginia	3,524	44.6	(±2.9)	42.1	(±6.8)	45.2	(±3.1)
Region 4	**53,933**	**41.3**	**(±1.1)**	**43.9**	**(±2.4)**	**40.5**	**(±1.2)**
Alabama	5,656	40.9	(±3.2)	46.5	(±8.0)	39.2	(±3.3)
Florida	13,781	36.6	(±2.2)	35.7	(±4.3)	36.8	(±2.5)
Georgia	5,210	40.5	(±2.8)	44.7	(±5.3)	39.0	(±3.3)
Kentucky	5,626	44.0	(±2.9)	47.8	(±7.0)	42.8	(±3.1)
Mississippi	6,480	36.6	(±3.3)	35.9	(±10.5)††	36.9	(±2.5)
North Carolina	6,222	45.6	(±3.4)	51.0	(±6.4)	43.9	(±3.9)
South Carolina	5,971	46.6	(±3.3)	45.5	(±7.5)	47.0	(±3.7)
Tennessee	4,987	45.4	(±3.5)	49.8	(±7.9)	44.1	(±3.9)
Region 5**	**32,997**	**41.3**	**(±1.4)**	**47.5**	**(±2.9)**	**39.2**	**(±1.6)**
Illinois	5,739	37.6	(±2.7)	43.6	(±5.7)	35.7	(±3.1)
Indiana	6,400	40.0	(±2.7)	44.4	(±6.8)	38.6	(±2.7)
Michigan§§	1,684	—	—	44.7	(±6.9)	—	—
Minnesota	7,230	51.4	(±2.9)	55.8	(±6.6)	50.0	(±3.1)
Ohio	6,926	43.0	(±2.4)	49.4	(±7.1)	41.1	(±2.4)
Wisconsin	5,018	40.5	(±3.0)	53.5	(±7.6)	36.7	(±3.1)
Region 6**	**23,409**	**40.2**	**(±2.2)**	**46.2**	**(±3.5)**	**37.9**	**(±2.5)**
Arkansas	3,878	46.3	(±5.0)	64.0	(±15.5)††	40.7	(±4.3)
Louisiana§§	1,582	—	—	41.7	(±6.8)	—	—
New Mexico	3,920	44.9	(±3.8)	54.5	(±8.9)	41.7	(±4.1)
Oklahoma§§	1,391	—	—	46.7	(±7.7)	—	—
Texas	12,638	39.4	(±2.5)	44.9	(±4.5)	37.4	(±2.9)
Region 7	**28,572**	**45.3**	**(±1.6)**	**45.7**	**(±3.6)**	**45.1**	**(±1.8)**
Iowa	4,991	50.4	(±3.0)	50.1	(±6.4)	50.5	(±3.3)
Kansas	7,549	46.0	(±2.6)	47.4	(±7.5)	45.5	(±2.4)
Missouri	4,522	42.6	(±3.1)	43.9	(±6.1)	42.2	(±3.5)
Nebraska	11,510	45.2	(±2.5)	43.7	(±6.5)	45.7	(±2.5)
Region 8**	**28,962**	**43.9**	**(±1.8)**	**50.4**	**(±4.4)**	**41.7**	**(±1.8)**
Colorado	6,328	43.4	(±2.8)	53.5	(±7.1)	40.2	(±2.9)
Montana	5,905	36.4	(±2.8)	33.2	(±8.3)	37.3	(±2.7)
North Dakota	4,080	49.1	(±3.6)	48.5	(±7.3)	49.2	(±4.1)
South Dakota§§	1,639	—	—	53.4	(±9.6)	—	—
Utah	6,280	46.7	(±3.4)	49.2	(±7.9)	45.6	(±3.3)
Wyoming	4,730	40.4	(±4.1)	47.1	(±14.0)††	38.3	(±3.1)
Region 9**	**13,628**	**44.4**	**(±4.3)**	**53.4**	**(±5.2)**	**40.3**	**(±3.7)**
Arizona	5,194	41.4	(±3.8)	47.1	(±7.2)	39.4	(±4.5)
California§§	3,081	—	—	54.0	(±6.1)	—	—
Hawaii	3,776	53.3	(±4.6)	85.4	(±14.0)††	44.5	(±4.5)
Nevada§§	1,577	—	—	40.7	(±10.1)††	—	—
Region 10**	**21,783**	**40.9**	**(±2.3)**	**43.3**	**(±6.0)**	**39.4**	**(±1.6)**
Alaska	2,483	34.8	(±4.2)	44.1	(±10.1)††	31.6	(±4.5)
Idaho	4,543	37.6	(±3.7)	42.5	(±10.6)††	35.8	(±3.3)
Oregon§§	1,437	—	—	38.8	(±6.5)	—	—
Washington	13,320	42.4	(±2.8)	46.2	(±10.4)††	41.2	(±2.0)
Median	*5,210*	*44.8*		*49.1*		*42.5*	
Range	*1,391–13,781*	*34.8–53.3*		*33.2–85.4*		*31.6–50.5*	

See table footnotes on page 739.

TABLE 1. (*Continued*) Estimated influenza vaccination coverage, by U.S. Department of Health and Human Services (HHS) region, state, and selected age and risk groups — Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey (NIS), United States, end of February 2011*

	Persons aged 18–49 yrs		Persons aged 50–64 yrs		Persons aged ≥65 yrs		Persons aged 18–64 yrs at high risk†	
HHS region and state	%§	(95% CI¶)	%	(95% CI)	%	(95% CI)	%	(95% CI)
United States**	**30.2**	**(±1.0)**	**45.6**	**(±1.0)**	**68.6**	**(±0.8)**	**48.4**	**(±2.2)**
Region 1	**36.5**	**(±2.2)**	**50.1**	**(±2.0)**	**71.6**	**(±1.8)**	**54.3**	**(±4.7)**
Connecticut	35.0	(±5.1)	46.3	(±4.3)	70.4	(±4.1)	56.3	(±12.0)††
Maine	32.4	(±3.5)	47.7	(±3.3)	67.0	(±3.1)	48.7	(±6.9)
Massachusetts	38.9	(±3.7)	52.8	(±3.3)	73.5	(±3.1)	54.2	(±7.6)
New Hampshire	32.8	(±4.9)	47.5	(±4.5)	73.4	(±4.3)	52.3	(±11.6)††
Rhode Island	36.7	(±4.3)	52.4	(±4.7)	68.2	(±3.9)	57.0	(±8.2)
Vermont	34.3	(±4.7)	51.1	(±5.3)	71.3	(±3.7)	51.3	(±11.6)††
Region 2	**30.9**	**(±3.9)**	**45.4**	**(±2.9)**	**69.2**	**(±2.9)**	**52.5**	**(±8.6)**
New Jersey	25.8	(±2.9)	43.3	(±4.1)	67.9	(±3.5)	44.8	(±6.9)
New York	34.1	(±6.1)	46.2	(±3.9)	69.8	(±4.1)	56.8	(±12.5)††
Region 3	**31.3**	**(±2.4)**	**48.5**	**(±2.4)**	**70.6**	**(±2.2)**	**50.5**	**(±5.1)**
Delaware	30.4	(±5.9)	51.1	(±6.5)	70.7	(±5.3)	48.1	(±15.7)††
District of Columbia	34.1	(±7.1)	47.1	(±7.1)	60.9	(±6.1)	64.4	(±19.2)††
Maryland	35.2	(±4.5)	52.5	(±4.5)	70.9	(±4.1)	48.2	(±9.8)
Pennsylvania	25.1	(±3.7)	43.2	(±3.9)	68.7	(±3.3)	44.2	(±7.8)
Virginia	36.7	(±5.5)	51.7	(±5.3)	73.1	(±4.9)	58.1	(±11.4)††
West Virginia	30.2	(±4.7)	51.4	(±5.1)	74.9	(±5.1)	57.8	(±10.4)††
Region 4	**28.6**	**(±1.8)**	**44.4**	**(±2.0)**	**70.9**	**(±1.6)**	**44.7**	**(±3.9)**
Alabama	27.2	(±5.1)	42.2	(±4.5)	70.4	(±4.1)	47.1	(±9.4)
Florida	22.1	(±3.9)	38.8	(±4.7)	68.7	(±3.1)	35.4	(±8.6)
Georgia	30.7	(±4.9)	44.1	(±5.1)	65.1	(±4.9)	50.5	(±11.0)††
Kentucky	30.5	(±4.7)	50.2	(±4.5)	71.5	(±3.9)	36.9	(±6.5)
Mississippi	23.4	(±3.3)	44.3	(±3.9)	70.0	(±3.1)	49.0	(±9.4)
North Carolina	30.6	(±5.1)	49.7	(±5.9)	79.5	(±5.3)	40.9	(±8.0)
South Carolina	37.9	(±6.3)	47.7	(±5.1)	72.6	(±4.1)	58.2	(±10.2)††
Tennessee	33.5	(±6.3)	47.2	(±5.3)	73.2	(±4.5)	55.9	(±12.3)††
Region 5**	**28.5**	**(±2.4)**	**44.2**	**(±2.2)**	**66.4**	**(±2.2)**	**44.9**	**(±4.5)**
Illinois	25.4	(±4.7)	41.2	(±4.7)	63.2	(±4.3)	38.9	(±9.2)
Indiana	27.2	(±4.1)	43.7	(±4.3)	67.4	(±4.1)	48.2	(±9.8)
Michigan§§	—	—	—	—	—	—	—	—
Minnesota	39.5	(±4.3)	54.2	(±5.1)	77.6	(±4.1)	59.3	(±8.8)
Ohio	30.1	(±3.5)	47.3	(±3.7)	65.9	(±3.7)	45.4	(±7.1)
Wisconsin	25.4	(±4.3)	39.7	(±4.5)	66.7	(±5.5)	48.8	(±11.4)††
Region 6**	**28.0**	**(±3.7)**	**45.9**	**(±3.9)**	**64.0**	**(±3.5)**	**51.2**	**(±9.0)**
Arkansas	29.5	(±6.9)	42.7	(±6.5)	67.4	(±5.1)	49.8	(±13.1)††
Louisiana§§	—	—	—	—	—	—	—	—
New Mexico	35.4	(±6.5)	45.3	(±5.5)	57.8	(±5.7)	49.0	(±14.3)††
Oklahoma§§	—	—	—	—	—	—	—	—
Texas	27.4	(±4.1)	46.4	(±4.5)	64.1	(±4.1)	52.1	(±11.4)††
Region 7	**35.5**	**(±2.7)**	**46.9**	**(±2.7)**	**71.0**	**(±2.4)**	**52.0**	**(±6.1)**
Iowa	40.1	(±5.3)	52.1	(±4.7)	77.6	(±4.9)	60.9	(±13.7)††
Kansas	35.8	(±3.5)	47.8	(±3.1)	72.6	(±2.7)	41.3	(±7.1)
Missouri	32.7	(±5.5)	42.9	(±5.7)	68.9	(±4.5)	56.7	(±11.2)††
Nebraska	36.7	(±3.9)	50.3	(±3.7)	66.2	(±2.7)	44.4	(±7.4)
Region 8**	**33.6**	**(±2.7)**	**44.9**	**(±2.4)**	**67.4**	**(±2.4)**	**49.0**	**(±6.3)**
Colorado	31.6	(±4.5)	42.9	(±3.7)	69.5	(±3.9)	49.0	(±10.8)††
Montana	25.0	(±4.1)	43.5	(±3.9)	61.8	(±3.7)	41.4	(±8.4)
North Dakota	43.6	(±7.1)	49.8	(±5.3)	64.8	(±4.5)	71.9	(±15.3)††
South Dakota§§	—	—	—	—	—	—	—	—
Utah	39.7	(±4.7)	49.9	(±4.7)	66.6	(±4.1)	50.4	(±9.2)
Wyoming	27.1	(±4.9)	44.2	(±5.1)	63.6	(±4.3)	41.4	(±11.2)††
Region 9**	**30.2**	**(±5.3)**	**42.9**	**(±6.9)**	**68.0**	**(±3.9)**	**48.1**	**(±12.0)††**
Arizona	29.2	(±6.3)	42.8	(±8.4)	67.3	(±4.5)	46.6	(±13.7)††
California§§	—	—	—	—	—	—	—	—
Hawaii	35.5	(±7.3)	43.5	(±5.7)	69.9	(±6.3)	55.2	(±15.5)††
Nevada§§	—	—	—	—	—	—	—	—
Region 10**	**31.0**	**(±2.4)**	**42.7**	**(±2.2)**	**64.6**	**(±2.4)**	**46.0**	**(±5.9)**
Alaska	27.3	(±6.1)	33.2	(±6.3)	54.0	(±11.8)††	28.2	(±13.9)††
Idaho	26.9	(±4.9)	39.5	(±5.1)	61.3	(±5.1)	46.2	(±10.6)††
Oregon§§	—	—	—	—	—	—	—	—
Washington	32.4	(±2.9)	44.9	(±2.7)	66.1	(±2.5)	47.8	(±7.3)
Median	*32.0*		*46.4*		*68.7*		*49.0*	
Range	*22.1–43.6*		*33.2–54.2*		*54.0–79.5*		*28.2–71.9*	

* Coverage estimates are for persons interviewed during September 2010–March 2011, with reported vaccination during August 2010–February 2011.
† Includes persons with asthma, diabetes, or heart disease.
§ Percentages are weighted to the noninstitutionalized, U.S. civilian population. Month of vaccination was imputed for respondents with a reported vaccination and a missing vaccination month.
¶ Confidence interval.
** National and corresponding regional estimates for all age subgroups that include adults exclude California, Louisiana, Michigan, Nevada, Oklahoma, Oregon, and South Dakota because March interview data were unavailable.
†† Estimates might be unreliable because confidence interval half-width is >10.
§§ Data for adults were not available because of missing March interviews. Sample size corresponds to children aged 6 months–17 years only.

(*4*). State-specific coverage for children ranged from 33.2% (Montana) to 85.4% (Hawaii). Coverage among the 43 states and DC for adults aged ≥18 years was 40.9%, similar to 2009–10 seasonal coverage (40.5%); state-specific coverage ranged from 31.6% (Alaska) to 50.5% (Iowa). State-specific child and adult coverage levels had a correlation of 0.39, and coverage levels among children were more variable than those among adults. State-specific coverage in 2010–11 was positively correlated with 2009–10 seasonal coverage for children (r = 0.79) and for adults (r = 0.79).

Among the 43 states and DC, coverage for adults aged 18–49 years for the 2010–11 season was 30.2%, similar to coverage for the 2009–10 season (30.3%); state-specific coverage ranged from 22.1% (Florida) to 43.6% (North Dakota). Coverage for adults aged 50–64 years was 45.6%, comparable to 2009–10 coverage (44.8%); state-specific coverage ranged from 33.2% (Alaska) to 54.2% (Minnesota). Coverage for adults aged ≥65 years was 68.6%, comparable to 2009–10 coverage (68.9%); state-specific coverage ranged from 54.0% (Alaska) to 79.5% (North Carolina). Coverage for adults aged 18–64 years with a medical condition that increased their risk for severe influenza was 48.4% and state-specific coverage ranged from 28.2% (Alaska) to 71.9% (North Dakota).¶

Coverage by Race/Ethnicity

Among all persons aged ≥6 months, coverage among the 43 states and DC was higher for non-Hispanic whites (44.0%) compared with non-Hispanic blacks (38.8%) and Hispanics (40.6%) and similar to coverage for non-Hispanic others (42.8%) (Table 2). Among adults, non-Hispanic whites (43.3%; 95% confidence interval [CI] = 42.7–43.9) had the highest coverage, followed by non-Hispanic others (39.0%; CI = 35.9–42.1), and non-Hispanic blacks (34.9%; CI = 32.5–37.3) and Hispanics (32.4%; CI = 29.7–35.1). Adult coverage for non-Hispanic whites, Hispanics, and non-Hispanic others in 2010–11 was comparable to 2009–10 seasonal levels (43.8%, 30.6%, 37.8%, respectively), but was 3.6 percentage points higher in 2010–11 for non-Hispanic blacks. Among children, national coverage was higher for Hispanics (55.3%; CI = 51.7–58.9) and non-Hispanic others (53.6%; CI = 49.6–57.6) compared with non-Hispanic whites (46.3%; CI = 45.0–47.6), and Hispanics also had higher coverage than non-Hispanic blacks (47.9%; CI = 43.3–52.5). Among children, 2010–11 coverage for non-Hispanic others was comparable to 2009–10 national seasonal levels (51.8%), but was 3.8, 11.4, and 12.4 percentage points higher for non-Hispanic whites (42.5%), Hispanics (43.9%), and non-Hispanic blacks (35.5%), respectively.

¶ Available monthly 2010–11 vaccination coverage estimates for all states and for additional age groups are available at http://www.cdc.gov/flu/professionals/vaccination/vaccinecoverage.htm.

Coverage by Month

Of the two age groups with recent ACIP recommendations to receive annual influenza vaccination, coverage levels among children aged 6 months–17 years were higher for all months of the 2010–11 season compared with monthly estimates from the 2009–10 season (Figure). Adults aged 18–49 years had monthly vaccination coverage estimates that were comparable for all vaccination months of the 2009–10 season, except for September and October.

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Editorial Note

For the 2010–11 season, ACIP recommendations for annual vaccination for all persons aged ≥6 months went into effect, memories of the 2009 H1N1 pandemic were fresh in the public's mind, and approximately 48 million more seasonal vaccine doses were distributed than for the 2009–10 season. A moderate increase in child vaccination coverage was observed compared with coverage for the 2009–10 season, although the increase was not as large as that observed from 2008–09 to 2009–10 among 19 states (*5*). School-located H1N1 vaccination was used in many communities (*6*), and that strategy might have found greater use in some areas during the 2010–11 season. Higher coverage in children also might reflect the second full year since expansion of ACIP influenza vaccination recommendations to include all children aged 6 months–18 years, with increased offering by vaccination providers and acceptance by parents (*7*). Although 2010–11 was the first season the ACIP expanded recommendations to include all adults aged 19–49 years to receive annual influenza vaccination, no significant increase in coverage occurred, underscoring the challenges associated with increasing coverage in this group.

Influenza vaccination coverage between states varied widely, particularly for children and for adults aged 18–64 years with high-risk conditions. In addition, state-level seasonal coverage levels for 2010–11 correlated positively with levels achieved in 2009–10. Lessons learned from states with high vaccination coverage should be imparted to states with lower coverage.

The 2010–11 estimates of national coverage levels and monthly vaccination for children aged 6 months–17 years

TABLE 2. Estimated influenza vaccination coverage, by U.S. Department of Health and Human Services (HHS) region, state, and selected race/ethnicity — Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey (NIS), United States, end of February 2011*

	White, non-Hispanic persons aged ≥6 mos			Black, non-Hispanic persons aged ≥6 mos			Hispanic persons aged ≥6 mos			Persons of other race/ethnicity aged ≥6 mos		
HHS region and state	No.†	%§	(95% CI¶)	No.	%	(95% CI)	No.	%	(95% CI)	No.	%	(95% CI)
United States**	**212,670**	**44.0**	**(±0.5)**	**23,120**	**38.8**	**(±2.2)**	**20,945**	**40.6**	**(±2.2)**	**16,426**	**42.8**	**(±2.5)**
Region 1	**32,341**	**49.9**	**(±1.4)**	**1,206**	**44.8**	**(±6.5)**	**1,995**	**49.9**	**(±7.1)**	**1,669**	**46.7**	**(±6.0)**
Connecticut	4,285	49.3	(±3.2)	436	39.5	(±8.9)	535	43.9	(±8.3)	358	44.9	(±9.6)
Maine	6,348	45.2	(±2.5)	49	58.8	(±17.7)††	97	48.6	(±20.2)††	181	44.7	(±12.1)††
Massachusetts	8,589	52.2	(±2.3)	513	44.7	(±10.0)	780	49.2	(±11.5)††	556	48.8	(±9.9)
New Hampshire	4,013	45.5	(±3.2)	—§§	—§§	—§§	88	52.0	(±19.1)††	154	27.1	(±11.4)††
Rhode Island	4,150	51.7	(±2.7)	144	79.3	(±13.5)††	409	58.6	(±9.3)	240	54.3	(±9.7)
Vermont	4,956	46.9	(±3.4)	35	50.6	(±22.6)††	86	61.4	(±23.3)††	180	36.7	(±11.4)††
Region 2	**11,928**	**44.3**	**(±2.1)**	**1,859**	**42.8**	**(±6.5)**	**1,983**	**46.9**	**(±6.9)**	**1,145**	**41.6**	**(±7.5)**
New Jersey	6,540	43.1	(±2.6)	910	44.5	(±5.9)	991	38.1	(±5.9)	642	44.7	(±6.9)
New York	5,388	44.8	(±2.9)	949	42.6	(±9.8)	992	52.3	(±10.6)††	503	40.0	(±10.6)††
Region 3	**21,620**	**45.5**	**(±1.6)**	**5,063**	**47.2**	**(±4.5)**	**1,439**	**46.2**	**(±7.0)**	**1,614**	**42.8**	**(±7.3)**
Delaware	2,154	48.1	(±4.0)	461	40.8	(±10.6)††	212	34.3	(±18.3)††	209	41.1	(±13.6)††
District of Columbia	1,525	50.5	(±5.3)	1,445	39.0	(±6.8)	216	41.7	(±11.8)††	216	57.2	(±26.7)††
Maryland	4,828	51.3	(±3.2)	1,527	46.2	(±5.7)	352	42.2	(±11.4)††	454	52.0	(±11.8)††
Pennsylvania	6,042	41.7	(±2.5)	825	56.4	(±10.1)††	342	42.6	(±10.0)	297	26.2	(±9.7)
Virginia	3,780	48.1	(±3.4)	725	41.8	(±6.8)	261	53.1	(±13.8)††	348	51.0	(±12.5)††
West Virginia	3,291	44.8	(±2.9)	80	39.4	(±19.6)††	56	39.6	(±19.3)††	90	39.3	(±18.2)††
Region 4	**39,582**	**43.8**	**(±1.2)**	**9,042**	**35.1**	**(±2.5)**	**2,587**	**37.1**	**(±4.5)**	**2,134**	**40.7**	**(±6.1)**
Alabama	3,855	42.2	(±3.7)	1,378	36.0	(±6.4)	147	49.8	(±16.7)††	222	38.4	(±11.1)††
Florida	10,688	41.7	(±2.7)	1,160	30.2	(±6.3)	1,201	30.1	(±6.2)	511	24.4	(±7.8)
Georgia	3,435	42.6	(±3.6)	1,169	35.9	(±6.0)	303	39.6	(±10.3)††	258	43.5	(±13.1)††
Kentucky	5,025	43.9	(±3.0)	201	50.8	(±16.8)††	115	25.1	(±12.6)††	233	54.4	(±13.6)††
Mississippi	4,129	39.8	(±3.0)	2,066	30.1	(±5.5)	116	—¶¶	—¶¶	138	41.4	(±10.7)††
North Carolina	4,538	47.4	(±3.9)	994	38.0	(±7.1)	324	49.5	(±13.5)††	345	42.5	(±11.5)††
South Carolina	3,950	46.8	(±4.0)	1,440	40.1	(±5.9)	200	61.6	(±14.8)††	230	63.5	(±13.7)††
Tennessee	3,962	46.6	(±3.5)	634	36.7	(±8.6)	181	57.1	(±12.6)††	197	63.8	(±20.9)††
Region 5**	**25,488**	**42.0**	**(±1.4)**	**2,750**	**38.5**	**(±6.0)**	**1,470**	**39.6**	**(±6.6)**	**1,380**	**37.7**	**(±7.1)**
Illinois	3,835	38.9	(±2.9)	865	34.5	(±9.1)	690	37.8	(±9.1)	330	31.2	(±13.0)††
Indiana	5,171	40.2	(±2.8)	688	42.8	(±11.6)††	272	40.7	(±11.3)††	193	28.3	(±8.8)
Michigan***	—	—	—	—	—	—	—	—	—	—	—	—
Minnesota	6,454	52.0	(±2.9)	189	60.4	(±12.4)††	220	32.6	(±12.6)††	325	57.0	(±12.3)††
Ohio	5,841	44.2	(±2.7)	613	34.7	(±6.9)	144	44.2	(±18.3)††	269	39.0	(±11.3)††
Wisconsin	4,187	38.6	(±2.8)	395	57.0	(±13.2)††	144	49.7	(±16.4)††	263	48.9	(±13.1)††
Region 6**	**11,421**	**43.3**	**(±2.9)**	**1,619**	**35.2**	**(±8.6)**	**5,935**	**35.9**	**(±3.8)**	**1,268**	**47.2**	**(±9.3)**
Arkansas	2,947	45.7	(±4.6)	513	40.6	(±8.3)	196	46.2	(±19.1)††	182	43.6	(±14.7)††
Louisiana***	—	—	—	—	—	—	—	—	—	—	—	—
New Mexico	1,973	44.5	(±5.1)	51	—¶¶	—¶¶	1,496	44.7	(±5.7)	375	49.9	(±11.7)††
Oklahoma***	—	—	—	—	—	—	—	—	—	—	—	—
Texas	6,501	43.0	(±3.5)	1,055	33.3	(±8.9)	4,243	34.7	(±4.3)	711	46.5	(±10.8)††

See table footnotes on page 742.

indicated that children began receiving their vaccinations slightly earlier in the season and received more vaccine overall compared with 2009–10 seasonal levels; for adults aged 18–49 years, coverage levels and monthly vaccination closely mirrored those from 2009–10. During the vaccination period, coverage among children increased more rapidly compared with adults aged 18–49 years. National Influenza Vaccination Week, December 5–11, 2010 (*8*), was established to highlight the importance of continuing vaccination through December and beyond; its campaign efforts might have contributed to increased coverage levels into December and January, as observed for children in particular.

The pattern of lower influenza vaccination coverage for Hispanics and non-Hispanic blacks compared with non-Hispanic whites among persons aged ≥6 months also has been observed in previous seasons overall (*5*) and among adults (*9*). Although racial/ethnic disparities in vaccination coverage among adults persisted, the gap in coverage decreased somewhat. Improved coverage among non-Hispanic black and Hispanic children eliminated racial/ethnic disparities in child coverage during the 2010–11 season. This increase in coverage might be attributed partly to the Vaccines for Children program, which provides vaccines at no cost to children from low-income homes.**

The findings in this report are subject to at least six limitations. First, influenza vaccination status was based on self or parental report, was not validated with medical records,

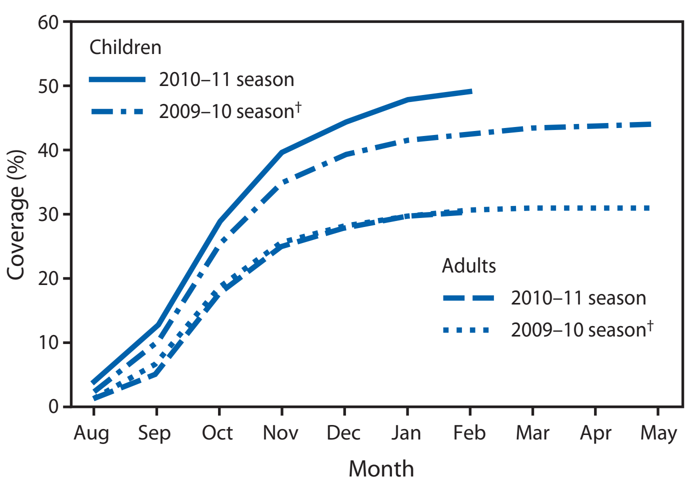
** More information about the Vaccines for Children program is available at http://www.cdc.gov/vaccines/programs/vfc.

TABLE 2. (*Continued*) Estimated influenza vaccination coverage, by U.S. Department of Health and Human Services (HHS) region, state, and selected race/ethnicity — Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey (NIS), United States, end of February 2011*

	White, non-Hispanic persons aged ≥6 mos			Black, non-Hispanic persons aged ≥6 mos			Hispanic persons aged ≥6 mos			Persons of other race/ ethnicity aged ≥6 mos		
HHS region and state	No.†	%§	(95% CI¶)	No.	%	(95% CI)	No.	%	(95% CI)	No.	%	(95% CI)
Region 7	**25,283**	**46.6**	**(±1.7)**	**990**	**29.2**	**(±6.7)**	**1,177**	**41.1**	**(±6.7)**	**981**	**49.4**	**(±8.6)**
Iowa	4,602	51.0	(±3.1)	87	38.6	(±21.1)††	173	46.7	(±14.1)††	108	42.3	(±18.2)††
Kansas	6,531	47.3	(±2.4)	285	33.1	(±10.8)††	403	39.5	(±12.9)††	310	52.2	(±11.6)††
Missouri	3,665	44.6	(±3.4)	433	23.8	(±7.6)	141	34.4	(±12.6)††	253	52.6	(±13.4)††
Nebraska	10,485	44.8	(±2.4)	185	54.0	(±15.7)††	460	48.3	(±11.7)††	310	37.9	(±12.6)††
Region 8**	**23,661**	**43.4**	**(±1.7)**	**194**	**35.9**	**(±14.7)††**	**1,660**	**48.7**	**(±7.1)**	**1,603**	**43.5**	**(±8.1)**
Colorado	5,070	43.0	(±2.8)	107	34.1	(±16.4)††	785	49.1	(±8.7)	311	44.0	(±12.9)††
Montana	5,100	36.0	(±2.8)	—§§	—§§	—§§	128	51.2	(±22.1)††	630	36.8	(±9.5)
North Dakota	3,719	49.9	(±3.7)	—§§	—§§	—§§	71	44.0	(±21.4)††	227	43.3	(±18.2)††
South Dakota***	—	—	—	—	—	—	—	—	—	—	—	—
Utah	5,577	46.2	(±3.3)	—§§	—§§	—§§	394	48.2	(±11.8)††	252	50.7	(±12.2)††
Wyoming	4,195	40.1	(±3.5)	—§§	—§§	—§§	282	46.6	(±21.4)††	183	35.1	(±16.2)††
Region 9**	**4,556**	**42.2**	**(±4.1)**	**154**	**—¶¶**	**—¶¶**	**1,452**	**45.6**	**(±9.3)**	**2,738**	**49.0**	**(±5.2)**
Arizona	3,503	41.4	(±4.4)	111	—¶¶	—¶¶	1,090	41.5	(±7.9)	449	45.6	(±9.8)
California***	—	—	—	—	—	—	—	—	—	—	—	—
Hawaii	1,053	50.7	(±7.5)	43	71.4	(±25.0)††	362	46.5	(±6.9)	2,289	52.1	(±5.4)
Nevada***	—	—	—	—	—	—	—	—	—	—	—	—
Region 10**	**16,790**	**39.8**	**(±1.6)**	**243**	**49.3**	**(±17.0)††**	**1,247**	**48.2**	**(±11.0)††**	**1,894**	**39.2**	**(±5.0)**
Alaska	1,588	30.2	(±4.4)	55	—¶¶	—¶¶	129	59.4	(±15.4)††	701	39.1	(±8.7)
Idaho	3,994	37.2	(±3.3)	—§§	—§§	—§§	325	51.0	(±19.7)††	165	21.0	(±9.9)
Oregon***	—	—	—	—	—	—	—	—	—	—	—	—
Washington	11,208	41.7	(±2.0)	173	53.3	(±21.9)††	793	48.0	(±12.7)††	1,028	39.4	(±6.0)
Median	*4,240*	*44.8*		*487*	*40.6*		*277*	*46.5*		*266*	*43.6*	
Range	*1,053–11,208*	*30.2–52.2*		*35–2,066*	*23.8–79.3*		*56–4,243*	*25.1–61.6*		*90–2,289*	*21–63.8*	

* Coverage estimates are for persons interviewed during September 2010–March 2011 with reported vaccination during August 2010–February 2011.
† Unweighted sample size.
§ Percentages are weighted to the noninstitutionalized, U.S. civilian population. Month of vaccination was imputed for respondents with a reported vaccination and a missing vaccination month.
¶ Confidence interval.
** National and corresponding regional estimates exclude California, Louisiana, Michigan, Nevada, Oklahoma, Oregon, and South Dakota because March interview data were unavailable.
†† Estimates might be unreliable because confidence interval half-width is >10.
§§ Estimates not reliable because sample size is <30.
¶¶ Estimates not reliable because relative standard error is >0.3.
*** Data for adults were not available because of missing March interviews.

FIGURE. Estimated cumulative seasonal influenza vaccination coverage for children aged 6 months–17 years and adults aged 18–49 years, by month — Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey (NIS), United States, 2009–2011*



* Coverage estimates for children are from NIS and include all 50 states and the District of Columbia. Coverage estimates for adults are from BRFSS and include 43 states and the District of Columbia.
† Does not account for persons who received only influenza A (H1N1) vaccine.

and thus is subject to recall bias. Second, BRFSS and NIS are telephone-based surveys that do not include households without telephone service, and BRFSS data analyzed do not include households with cellular telephone service only. Third, response rates for both surveys were low, and nonresponse bias might remain, even after weighting adjustments to reflect the national population subgroup distribution and nonresponse. Fourth, combining BRFSS and NIS estimates allowed estimation of coverage for all persons aged ≥6 months; however, differences in survey methodology (e.g., different sampling frame, survey design, exact survey question wording, response rates, and weighting) might result in different levels of bias that are averaged for this group. Fifth, BRFSS adult interview data through March were not available for seven states, thus creating potential bias in comparisons between child and adult estimates. Only small differences (range: 0.0–2.9 percentage points) were observed, however, when comparisons between 2009–10 coverage among the 43 states and DC were made with 2009–10 national coverage by age and race/ethnicity group. This suggests that coverage for the seven missing states

What is already known on this topic?

The 2010–11 influenza season was distinct in that it followed the 2009 influenza A pandemic (H1N1) season and it was the first season in which the Advisory Committee on Immunization Practices (ACIP) recommended influenza vaccination of all persons aged ≥6 months. The season also was notable because a record number of influenza vaccine doses (approximately 163 million) were distributed in the United States for the season.

What is added by this report?

Vaccination coverage among 43 states and the District of Columbia for persons aged ≥6 months during 2010–11 suggests that the record high national vaccination coverage observed in 2009–10 was sustained during this nonpandemic season, although more improvement is needed to reach *Healthy People 2020* coverage targets. Improved coverage among non-Hispanic black and Hispanic children eliminated racial/ethnic disparities in child coverage during the 2010–11 season.

What are the implications for public health practice?

Vaccination providers should implement proven strategies for improving vaccination coverage, such as office-based protocols that include reminder/recall notification and standing orders, and health departments should adopt best practices to facilitate effective vaccination services and increase opportunities for vaccination at schools, pharmacies and stores, workplaces, and other nonmedical sites.

together did not differ substantially from the nation. Finally, vaccination coverage comparisons of the trivalent formulations between 2010–11 and 2009–10 do not account for persons who received only H1N1 vaccination during 2009–10.

Record high vaccination coverage was sustained during 2010–11, a nonpandemic year, with increases in national coverage observed for children compared with 2009–10 seasonal coverage. Racial/ethnic disparities were not observed among children because of large gains in coverage for non-Hispanic black and Hispanic children compared with 2009–10 levels. In spite of these gains, further work remains to reduce racial/ethnic disparities among adults and to bring annual seasonal vaccination coverage levels up to *Healthy People 2020* targets of 80% for persons aged 6 months–64 years, and 90% for adults aged 18–64 years with high-risk conditions and adults aged ≥65 years (*10*). With universal vaccination recommendations and consistent vaccine availability, substantial opportunities remain to increase coverage further. Expanded access through greater use of pharmacy, workplace, and school venues for vaccination, and better use of evidence-based practices at medical sites (e.g., standing orders, and reminder/recall notification) are important to building on these gains in vaccination coverage.

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References

1. CDC. Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010. MMWR 2010;59(No. RR-8).
2. CDC. Seasonal influenza vaccine–total doses distributed. Available at http://www.cdc.gov/flu/professionals/vaccination/vaccinesupply.htm. Accessed April 25, 2011.
3. CDC. Vaccinations to prevent diseases: universally recommended vaccinations. In: Guide to community preventive services. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at www.thecommunityguide.org/vaccines/universally/index.html. Accessed April 28, 2011.
4. CDC. Influenza vaccination coverage, 2009–10 influenza season. Available at http://www.cdc.gov/flu/professionals/vaccination/vaccinecoverage.htm. Accessed April 20, 2011.
5. CDC. Interim results: state-specific seasonal influenza vaccination coverage—United States, August 2009–January 2010. MMWR 2010;59:477–84.
6. Singleton, JA. Who got H1N1 vaccine? Findings from the U.S. 2009–2010 Influenza Vaccination Surveillance Systems. 44th National Immunization Conference. Atlanta, GA. Available at http://cdc.confex.com/cdc/nic2010/webprogram/Paper23190.html. Accessed June 3, 2011.
7. CDC. Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2009. MMWR 2009;58(No. RR-8).
8. CDC. National Influenza Vaccination Week—December 5–11, 2010. MMWR 2011;59:1556.
9. CDC. Influenza vaccination coverage among children and adults—United States, 2008–09 influenza season. MMWR 2009;58:1091–5.
10. US Department of Health and Human Services. Increase the percentage of children and adults who are vaccinated annually against seasonal influenza. Objective IID-12. Healthy people 2020. Washington, DC: US Department of Health and Human Services; 2010; Available at http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=23. Accessed June 7, 2011.

Renewed Transmission of Dracunculiasis — Chad, 2010

Transmission of dracunculiasis (Guinea worm disease), a waterborne, parasitic disease targeted for eradication, was thought to have been interrupted in Chad since 2000, when the last case was reported. However, in 2010, 10 cases were confirmed by the Chad Ministry of Public Health (Ministère de la Santé Publique [MSP]) and the World Health Organization (WHO) during field investigations in which rumored cases were investigated and nearby villages were actively searched for additional cases. Because patients were not prevented from contaminating water sources, new cases were expected in 2011. During January–February 2011, MSP, WHO, and CDC conducted an investigation to gather additional information to guide prevention and response activities before the 2011 transmission season. Seven districts where cases had been confirmed or suspected in 2010 or where dracunculiasis was endemic during 1994–2000 were surveyed. The results of those surveys indicated that residents of 116 (55%) of 210 villages and 13 (87%) of 15 nomad camps consumed water from unsafe sources; 157 (75%) of 209 village key informants (KIs) and five (33%) of 15 nomad camp KIs knew about dracunculiasis. Thirty-one villages had confirmed or suspected cases during 2009–2011 and were classified as at-risk, requiring weekly active surveillance and urgent pre-positioning of materials for the 2011 transmission season. Nomadic populations are at risk for dracunculiasis because of unsafe water consumption and minimal knowledge of the disease. These populations also require targeted surveillance and prevention efforts (e.g., filter distribution, education, and case containment*) to interrupt dracunculiasis transmission (*1*).

Dracunculiasis is transmitted by drinking unsafe† stagnant water contaminated by copepods (water fleas) that contain *Dracunculus medinensis* larvae. The copepods are digested in the human gastrointestinal tract and release the larvae, which penetrate the gut wall. The larvae mate, and pregnant female worms mature in connective tissues, growing to 2–3 feet (70–100 centimeters) in length. Approximately 10–14 months after initial ingestion, the female Guinea worm creates a painful burning blister on the patient's skin. When this lesion is bathed in water to ease the symptoms, the worm emerges and ejects larvae into the water, which are ingested by copepods, starting the cycle anew.

To manage the illness, the emerging worm is removed by rolling it around gauze or a stick a few centimeters per day; extraction is painful and can take weeks. Antibiotic ointment may be applied to the lesion to prevent secondary bacterial infections that can result in cellulitis, septic arthritis, joint contractures, and permanent disability. Currently, no effective drug to treat or vaccine to prevent dracunculiasis is available, and persons who contract dracunculiasis do not become immune (*2,3*). Dracunculiasis can be prevented by 1) educating patients with emerging worms to avoid bathing affected body parts in drinking water sources, 2) filtering potentially contaminated drinking water through cloth or pipe filters, 3) treating potentially contaminated stagnant drinking water with a larvicide such as temephos (e.g., Abate), 4) providing safe drinking water, and 5) detecting cases before the worm emerges to prevent patients with emerging worms from contaminating water supplies (*4*).

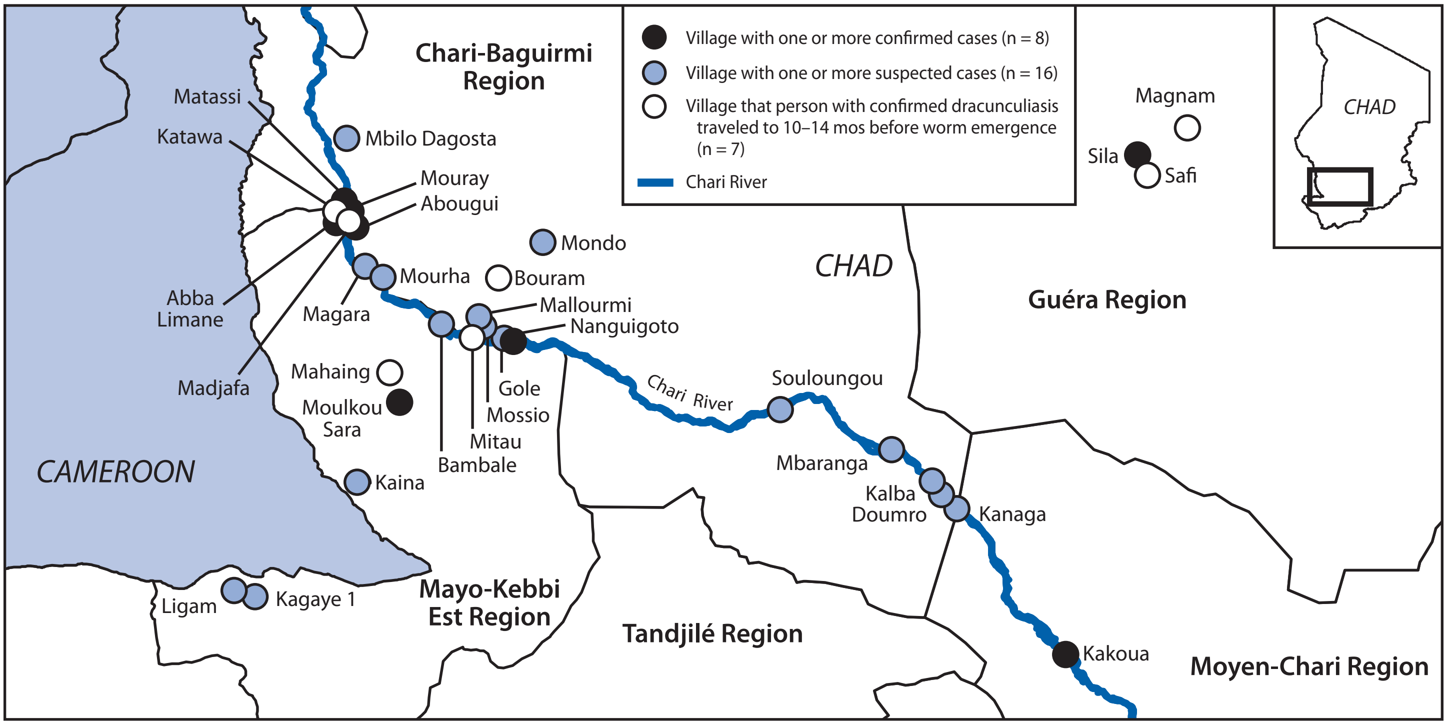
During April–June 2010, two rumored dracunculiasis cases were reported to Chad's National Guinea Worm Eradication Program (NGWEP). Cases were confirmed upon investigation, and extracted worms were further verified as *D. medinensis* at CDC by polymerase chain reaction (PCR) testing (*5*). Subsequently, NGWEP initiated an outbreak response with the assistance of WHO, which used house-to-house surveys to search for cases in all villages with confirmed, suspected, or rumored 2010 cases and in villages visited by patients during the 10–14 month incubation period preceding worm emergence. A rumored case was defined as an alleged dracunculiasis case based on any information obtained from any source (*6*); a suspected case was defined as a rumored case investigated by MSP or the investigation team with a history, reported by the patient or family, consistent with dracunculiasis but without an observed worm; a confirmed case was defined as any case with a history, reported by the patient or family, consistent with dracunculiasis and with a worm observed by MSP or the investigation team. KIs in neighboring villages also were interviewed. Additional house-to-house surveys later were conducted as part of poliomyelitis vaccination campaigns.

By October 2010, surveys, awareness campaigns, and increased surveillance had uncovered eight additional cases, all confirmed by worm collection (three cases were further verified by PCR testing at CDC). The 10 confirmed cases were located in eight different villages in five districts, within four regions of Chad (Figure). Six of the eight villages border

* A dracunculiasis case is contained if all of the following conditions are met: 1) the patient is detected within 24 hours of worm emergence; 2) the patient has not entered any water source since worm emergence; 3) the village health worker has properly managed the case by cleaning and bandaging until the worm is fully removed and by giving health education to discourage the patient from contaminating any water source; and 4) the containment process, including verification of diagnosis, is validated by a supervisor within 7 days of worm emergence.

† Unsafe stagnant water sources included ponds, pools in drying riverbeds, and shallow, uncovered wells. Safe water sources were those protected from possible Guinea worm contamination, including flowing rivers, covered hand-dug wells, or borehole wells.

FIGURE. Villages (N = 31) with confirmed or suspected cases or villages otherwise at risk during dracunculiasis outbreak — Chad, 2010–2011



the Chari River. Because of late detection, none of the 10 patients were prevented from contaminating drinking water sources; therefore, continued transmission was expected during the 2011 dracunculiasis transmission season, typically the April–October rainy season in Chad, when many villages are not accessible by road from the capital.

On December 22, 2010, MSP and WHO requested CDC assistance in conducting a dracunculiasis outbreak investigation. Objectives included 1) conducting active searches among sedentary and nomadic populations, 2) identifying ways to strengthen dracunculiasis surveillance, 3) evaluating general dracunculiasis knowledge, 4) sensitizing and educating persons about dracunculiasis, and 5) identifying at-risk localities in which to pre-position prevention and treatment supplies for the 2011 transmission season.

A cross-sectional survey among sedentary and nomadic populations was conducted. Seven districts were selected from among 16 districts in two overlapping categories: districts that were formerly endemic for dracunculiasis during 1994–2000 and districts that were not endemic during 1994–2000 but that had confirmed or suspected cases reported during 2010. Within selected districts, villages that were endemic for dracunculiasis during 1994–2000 or where rumored, suspected, or confirmed cases were reported during 2009–2011 were surveyed. Nomad camps were selected by convenience, based on recommendations from the Ministry of Livestock and Animal Resources and local veterinarians or nomad representatives in selected districts.

What is already known on this topic?

Dracunculiasis (Guinea worm disease) is a waterborne, parasitic disease targeted for eradication. Transmission is prevented by filtering water from unsafe sources, preventing persons with emerging worms from entering drinking water sources, treating contaminated water with a larvicide, and providing safe drinking water sources in communities where dracunculiasis is endemic. Dracunculiasis transmission was thought to have been interrupted in Chad since 2000.

What is added by this report?

Ten new dracunculiasis cases were confirmed in Chad in 2010; because patients were not prevented from contaminating drinking water sources, new cases were expected in 2011. Surveys in 210 villages and 15 nomad camps identified 31 at-risk villages with confirmed or suspected cases during 2009–2011. Two additional cases were later confirmed in 2011, and the total number of at-risk villages was increased to 36.

What are the implications for public health practice?

The resurgence of dracunculiasis transmission in Chad is a public health emergency of international concern. At-risk villages require weekly active surveillance and urgent pre-positioning of materials before the April–October 2011 transmission season. Both sedentary and nomadic populations should be targeted for education, prevention, and surveillance activities.

One KI in each selected village and nomad camp was interviewed using a questionnaire. In villages, the KI was a village chief or his representative; in nomad camps the KI was any adult representative available at the time of the visit. The KI was shown a photograph of an emerging Guinea worm and asked about awareness of or having ever seen dracunculiasis, recent rumors, and community water consumption practices. Village KIs also were asked about their knowledge of dracunculiasis transmission and prevention and about general indicators of health and development in their villages, whereas nomad KIs were asked about migration patterns and potential interactions with sedentary populations. In addition, assembled villagers were shown a photograph of an emerging worm and asked about awareness of or having ever seen dracunculiasis, including the village and year of the rumored case. Rumored cases occurring in 2007 or later were then investigated by interviewing the person reporting the rumor and by interviewing and examining the affected person, when possible. Each investigated rumor was then classified as a suspected case, a confirmed case, or as not dracunculiasis.

A total of 210 villages in seven districts were surveyed (Table); 138 (66%) had a safe water source, but residents of 116 (55%) villages consumed unsafe water (including residents in some villages with a safe water source). Among village KIs, 75% were aware of dracunculiasis, 55% knew how to prevent the disease, 59% knew how it is transmitted, 63% had seen someone with dracunculiasis, and 6% had seen someone with dracunculiasis during 2007–2011. Only 21% had heard about the monetary reward system for reporting a dracunculiasis case (Table). In 10 (5%) villages, at least one villager among those assembled reported that one or more rumored cases were seen during 2007–2011. Twenty rumored cases were reported in these 10 villages and subsequently were investigated. Of these 20 rumored cases, seven were found to have a history consistent with dracunculiasis and were classified as suspected cases.

Fifteen nomad camps in five districts were visited (Table). Eighty-seven percent of nomad KIs reported camp residents consumed unsafe water sometime during the year. These populations interact regularly with sedentary populations, either to share water sources or to attend weekly markets. No nomad KI had seen a case during 2007–2011 or knew about the monetary reward system.

Since the investigation, the first two 2011 cases were confirmed in Chad. The two cases increased the total number of at-risk villages to 36, including the two patients' villages of residence and three additional villages visited by one of the patients during the 10–14 months preceding worm emergence (*7*).

TABLE. Responses of key informants* to questions regarding surveyed communities and knowledge of dracunculiasis — 210 villages and 15 nomad camps, Chad, January–February 2011

Question	No. yes/ No. in sample†	(% yes)
Villages		
Village health worker in village?	104/208	(50)
School in village?	146/210	(70)
Health center in village?	27/209	(13)
Safe water source in village?§	138/210	(66)
Residents consumed unsafe water?¶	116/210	(55)
Awareness of dracunculiasis (recognized photo)?	157/209	(75)
Knowledge of dracunculiasis transmission?	120/204	(59)
Knowledge of dracunculiasis prevention?	113/206	(55)
Awareness of the monetary reward for reporting a dracunculiasis case?	44/210	(21)
Had seen a person with dracunculiasis during 2007–2011?	12/210	(6)
Nomad camps		
Residents consumed unsafe water?	13/15	(87)
Awareness of dracunculiasis (recognized photo)?	5/15	(33)
Awareness of the monetary reward for reporting a dracunculiasis case?	0/15	—
Had seen a person with dracunculiasis during 2007–2011?	0/15	—

* One key informant was selected for each village and nomad camp.
† Not all key informants responded to each question.
§ Those water sources protected from possible Guinea worm contamination, including flowing rivers, covered hand-dug wells, or borehole wells.
¶ Unsafe stagnant water sources included ponds, pools in drying riverbeds, and shallow, uncovered wells.

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Editorial Note

Occurring more than 10 years after the most recent case reported in the country, the dracunculiasis outbreak in Chad serves as a reminder that, until global eradication of dracunculiasis is achieved, adequate surveillance in areas where dracunculiasis was formerly endemic is essential. Following initial reports of two suspected dracunculiasis cases, three 2010–2011 investigations identified 31 at-risk villages§ based on the

§ An at-risk village is any village 1) with at least one confirmed or suspected case during 2009–2011 or 2) to which any confirmed dracunculiasis patient traveled during the 10–14 months preceding worm emergence. Nomad groups meeting these criteria or camping in proximity to a village meeting these criteria are also at risk.

presence of confirmed or suspected cases. Subsequently, two additional cases have been confirmed, and the total number of at-risk villages has increased to 36. These villages represent areas of greatest risk for Guinea worm emergence and disease transmission in 2011. No outbreak point source was identified; no common epidemiologic factor apart from a history of drinking unsafe water linked all confirmed cases. Although 36 villages have now been targeted, the risk for continued transmission and further dracunculiasis spread is high throughout the investigation area. Many residents of villages and nomad camps in Chad consume unsafe water despite the presence of safe water sources in many villages. Villagers and nomads have limited knowledge about dracunculiasis prevention and transmission, and dracunculiasis surveillance is inadequate.

The resurgence of dracunculiasis transmission in Chad is a public health emergency of international concern and a setback for the global Guinea Worm Eradication Program. Urgent action is needed before and during the 2011 transmission season to contain the outbreak (Box). Ideally, active daily surveillance should be conducted in all villages within districts containing one or more at-risk villages; however, resources currently available in Chad are not likely to achieve this coverage immediately. Therefore, active surveillance and accompanying prevention measures should initially be focused on the 36 at-risk villages. As

BOX. Recommended actions in response to the 2010–2011 dracunculiasis outbreak in Chad

- Contain* all new cases in health facilities to manage worm removal and prevent water contamination; distribute filters in all at-risk villages.
- Treat all eligible† unsafe water sources in villages with confirmed cases with temephos larvicide (e.g., Abate) each month during the 2011 transmission season.
- Communicate with and educate all district and health center public health staff members about dracunculiasis to implement broad community sensitization.
- Conduct population awareness campaigns (via radio, posters, village and market announcements, and gatherings) for sedentary and nomadic populations, including general dracunculiasis education and advertisement of the monetary reward system for identification of new cases.
- Provide dracunculiasis surveillance, prevention, and treatment services for nomadic populations. Innovative methods previously studied in Chad, such as participatory mapping and biometric identification (i.e., fingerprinting), may be used to establish public health surveillance among nomadic populations, because these populations are difficult to locate and often do not seek traditional public health services.
- Conduct case searches in all regions where dracunculiasis was formerly or is currently endemic, with immediate attention given to all districts where dracunculiasis was endemic after 1994 and all districts containing at-risk villages not yet visited by investigators.
- Use established community networks (e.g., polio surveillance network, human and animal vaccination agents, ivermectin distribution agents, and school albendazole and praziquantel distribution campaigns) to conduct case searches and increase knowledge of dracunculiasis and the monetary reward system.
- Strengthen dracunculiasis surveillance by building capacity within the National Guinea Worm Eradication Program, identifying and training village health workers in all at-risk villages, and improving communication networks for immediate reporting and investigation (i.e., within 24 hours) of rumors and cases.
- Strengthen communication with neighboring countries regarding possible imported cases.
- Promote intersectoral collaboration between ministries, including those responsible for public health, water, agriculture, livestock, education, and internal affairs.
- Establish safe water sources§ in all at-risk villages implicated in the current outbreak.

Sources: World Health Organization. Dracunculiasis eradication: case definition, surveillance and performance indicators. Weekly Epidemiol Rec 2003;37:323–8.

Weibel D, Schelling E, Bonfoh B, et al. Demographic and health surveillance of mobile pastoralists in Chad: integration of biometric fingerprint identification into a geographical information system. Geospat Health 2008;3:113–24.

Wiese M, Yosko I, Donnat M. Participatory mapping: a tool for public health decision-making in nomadic settings. A case study among Dazagada pastoralists of the Bahr-El-Ghazal region in Chad [French]. Med Trop (Mars) 2004;64:452–63.

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† In determining the eligibility of stagnant water sources for temephos larvicide treatment, consideration should be given to the size, seasonality, and location of these sources.

§ Those water sources protected from possible Guinea worm contamination, including flowing rivers, covered hand-dug wells, or borehole wells.

resources become available, these activities should be expanded to include all villages in districts with at-risk villages, all districts where dracunculiasis was endemic during 1994–2000, and all districts where confirmed or suspected cases occurring during 2009–2011 have been identified.

The seasonal migration of persons and livestock might have influenced transmission: 80% of confirmed 2010 cases and 86% of suspected cases identified during this investigation were located along the Chari River, which might have served as a conduit for infected persons. This river is a main transportation route across southern Chad, supports a fishing industry, and is crossed regularly by nomads who travel through Chad and sometimes to neighboring countries, interacting frequently with sedentary populations and sharing water sources. No conclusion could be made as to whether this outbreak resulted from cross-border importation or continued undetected domestic transmission during 2000–2010.

Because population movement across Africa will continue, the only measures against continued dracunculiasis transmission are sensitive ongoing surveillance, prompt investigation and case containment, and efficient communication. With <1,800 dracunculiasis cases reported worldwide in 2010 (*6*), the global community must to support the four remaining countries (Ethiopia, Ghana, Mali, and Sudan) where dracunculiasis is endemic and all African countries where the disease was formerly endemic (including Chad). The renewed transmission of dracunculiasis in Chad illustrates a critical lesson for other global disease elimination programs regarding the importance of postintervention surveillance to ensure that disease transmission does not resume after programs have stopped.

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References

1. World Health Organization. Dracunculiasis eradication: case definition, surveillance and performance indicators. Wkly Epidemiol Rec 2003; 37:323–8.
2. Imtiaz R, Hopkins DR, Ruiz-Tiben E. Permanent disability from dracunculiasis. Lancet 1990;336:630.
3. Ruiz-Tiben E, Hopkins DR. Dracunculiasis. In: Guerrant RL, Walker DH, Weller PF, eds. Tropical infectious diseases: principles, pathogens, and practice. 2nd ed. New York, NY: Elsevier; 2006:1204–7.
4. Ruiz-Tiben E, Hopkins DR. Dracunculiasis (Guinea worm disease) eradication. Adv Parasitol 2006;61:275–309.
5. Bimi L, Freeman AR, Eberhard ML, Ruiz-Tiben E, Pieniazek NJ. Differentiating *Dracunculus medinensis* from *D. insignis*, by the sequence analysis of the 18S rRNA gene. Annals Trop Med Parasitol 2005; 99:511–7.
6. World Health Organization Collaborating Center for Research, Training and Eradication of Dracunculiasis. Guinea worm wrap-up no. 203. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://cartercenter.org/resources/pdfs/news/health_publications/guinea_worm/wrap-up/203.pdf. Accessed June 6, 2011.
7. World Health Organization Collaborating Center for Research, Training and Eradication of Dracunculiasis. Guinea worm wrap-up no. 204. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://cartercenter.org/resources/pdfs/news/health_publications/guinea_worm/wrap-up/204.pdf. Accessed June 6, 2011.

Vital Signs: Incidence and Trends of Infection with Pathogens Transmitted Commonly Through Food — Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 1996–2010

On June 7, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

Abstract

Background: In the United States, contaminated food causes approximately 1,000 reported disease outbreaks and an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths annually. This report summarizes 2010 surveillance data and describes trends since 1996.

Methods: The Foodborne Diseases Active Surveillance Network (FoodNet) conducts surveillance among 15% of the U.S. population for laboratory-confirmed infections with nine pathogens transmitted commonly through food. Overall and pathogen-specific changes in incidence were estimated from 1996–1998 to 2010 and from 2006–2008 to 2010.

Results: A total of 19,089 infections, 4,247 hospitalizations, and 68 deaths were reported from FoodNet sites in 2010. *Salmonella* infection was the most common infection reported (17.6 illnesses per 100,000 persons) and was associated with the largest number of hospitalizations (2,290) and deaths (29); no significant change in incidence of *Salmonella* infection has occurred since the start of surveillance during 1996–1998. Shiga toxin–producing *Escherichia coli* (STEC) O157 infection caused 0.9 illnesses per 100,000. Compared with 1996–1998, overall incidence of infection with six key pathogens in 2010 was 23% lower, and pathogen-specific incidence was lower for *Campylobacter*, *Listeria*, STEC O157, *Shigella*, and *Yersinia* infection but higher for *Vibrio* infection. Compared with a more recent period, 2006–2008, incidence in 2010 was lower for STEC O157 and *Shigella* infection but higher for *Vibrio* infection.

Conclusions: The incidence of STEC O157 infection has declined to reach the 2010 national health objective target of ≤1 case per 100,000. This success, as well as marked declines since 1996–1998 in overall incidence of six key foodborne infections, demonstrates the feasibility of preventing foodborne illnesses.

Implications for Public Health Practice: *Salmonella* infection should be targeted because it has not declined significantly in more than a decade, and other data indicate that it is one of the most common foodborne infections, resulting in an estimated $365 million in direct medical costs annually. The prevention measures that reduced STEC O157 infection need to be applied more broadly to reduce *Salmonella* and other infections. Effective measures from farm to table include preventing contamination of meat during slaughter and of all foods, including produce, during processing and preparation; cooking meat thoroughly; vigorously detecting and investigating outbreaks; and recalling contaminated food.

Introduction

Contaminated food consumed in the United States causes an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths annually (*1,2*). The occurrence of approximately 1,000 reported disease outbreaks (local, regional, and national) each year highlights the challenges of preventing these infections (*3*). However, most foodborne illnesses occur in persons who are not part of recognized outbreaks (*2*). The U.S. food supply is changing, with increased centralization of production, global sourcing of ingredients, and growth in the number of meals prepared outside the home (*4,5*). Outbreak investigations continue to identify long-standing problems for which implementation of effective solutions has been slow. For example, a national outbreak of *Salmonella* infections in 2010 was caused by contamination of eggs, leading to a massive recall of approximately 500 million eggs. This occurred just before implementation of new egg regulations, which could have prevented the outbreak and the associated recall (*6*). Investigations also identify new problems for which solutions need to be devised.

Most foodborne infections cause diarrheal illness, ranging from mild to severe. Also, persons in susceptible populations and some healthy persons can develop severe complications, such as hemorrhagic colitis, bloodstream infection, meningitis, joint infection, kidney failure, paralysis, miscarriage, and other problems. Beyond their health effects, foodborne illnesses can cause emotional and economic hardship; for example, *Salmonella* alone causes approximately 1 million foodborne infections (*2*) and costs $365 million in direct medical expenditures* annually (*7*), and the societal cost of a single fatal case of *Escherichia coli* (STEC) O157 infection has been estimated at $7 million (*8*).

Gathering information from persons who are ill enough to seek medical care and submit a specimen for laboratory testing is essential for measuring progress in food safety. Measuring changes in the annual incidence of common foodborne infections can track progress toward national health objectives, inform regulatory and industry efforts to reduce food contamination, and monitor the effectiveness of prevention measures. Since 1996, the Foodborne Diseases Active Surveillance Network (FoodNet) has conducted active, population-based surveillance for infections with nine pathogens transmitted commonly through food and for post-diarrheal pediatric hemolytic uremic syndrome (HUS) (*9*). This report describes preliminary results of FoodNet surveillance for 2010 and summarizes trends in incidence of these infections since 1996.

Methods

FoodNet† is a collaborative program among CDC, 10 state health departments,§ the U.S. Department of Agriculture's Food Safety and Inspection Service (USDA-FSIS), and the Food and Drug Administration (FDA). It has conducted active, population-based surveillance for laboratory-confirmed infections caused by *Campylobacter*, *Listeria*, *Salmonella*, STEC O157, *Shigella*, *Vibrio*, and *Yersinia* since 1996; *Cryptosporidium* and *Cyclospora* since 1997; and STEC non-O157 since 2000. The surveillance area includes approximately 15% of the United States population (46 million persons). FoodNet personnel regularly contact clinical laboratories to ascertain laboratory-confirmed infections occurring in residents of the surveillance area (*9*) and record which were associated with outbreaks. Hospitalizations occurring within 7 days of specimen collection date are recorded, as is the patient's vital status at hospital discharge or at 7 days after the specimen collection date, if not hospitalized. Hospitalizations and deaths are attributed to the infection if they occur within 7 days of specimen collection.

Surveillance for HUS, a major complication of STEC infection characterized by renal failure, thrombocytopenia, and microangiopathic hemolytic anemia, is conducted through a network of nephrologists and infection control practitioners as well as hospital discharge data review. This report contains HUS data for children (persons aged <18 years) for 2009.

Incidence for 2010 was calculated by dividing the number of laboratory-confirmed infections by U.S. Census Bureau population estimates for the surveillance area for 2009.¶ Case-fatality ratios (CFRs) were calculated by dividing the number of deaths by the number of laboratory-confirmed infections and multiplying by 100. A main-effects, log-linear Poisson regression model (negative binomial) was used to estimate changes in incidence from 1996–1998 to 2010 and from 2006–2008** to 2010 with 95% confidence intervals (CIs). The model accounts for site-to-site variation and expansion of FoodNet over time (*10*). As a measure of overall trends in incidence, data were combined for *Campylobacter*, *Listeria*, *Salmonella*, STEC O157, *Yersinia*, and *Vibrio*, six key bacterial pathogens for which >50% of illnesses are estimated to be transmitted by food, weighting by incidence of infection for each pathogen (*2*). Trends were not assessed for STEC non-O157 and *Cyclospora* because data were sparse. A negative binomial model also was used for HUS to estimate incidence changes from 2006–2008 to 2009 with 95% CIs for all children.

Results

In 2010, a total of 19,089 laboratory-confirmed cases of infection, 4,247 hospitalizations, and 68 deaths were identified by FoodNet sites (Table 1). *Salmonella* infection was the most common infection reported (8,256 infections; 17.6 illnesses per 100,000 persons) and had the largest number of hospitalizations (2,290) and deaths (29). Incidence was highest in children aged <5 years (69.5 infections per 100,000 children) (Table 2), and 407 (5%) of infections were associated with recognized outbreaks. The incidence of *Salmonella* infection in 2010 was not significantly different than during 1996–1998 but was significantly higher than during 2006–2008 (10% increase; CI = 4%–17%) (Figures 1 and 2). Among the 7,564 (92%) *Salmonella* isolates serotyped, the most common serotypes were Enteritidis (22%), Newport (14%), and Typhimurium (13%). In 2010, compared with 1996–1998, incidence was significantly lower for Typhimurium (53% decrease; CI = 46%–58%) and higher for Newport (116% increase; CI = 67%–180%) and Enteritidis

* The direct medical cost estimate was prepared using the U.S. Department of Agriculture's Economic Research Service (ERS) foodborne illness cost calculator for *Salmonella* (*7*) and 1) the CDC estimate of annual number of cases of *Salmonella* infection (*2*); 2) the average cost of a physician office visit, emergency department visit, or outpatient department visit derived from the 2008 Medical Expenditures Panel Survey (available at http://www.meps.ahrq.gov/mepsweb); and 3) the average cost of a hospital admission for *Salmonella* infection derived from the 2008 Nationwide Inpatient Sample (available at http://www.hcup-us.ahrq.gov/nisoverview.jsp).

† Additional information about FoodNet is available at http://www.cdc.gov/foodnet.

§ Connecticut, Georgia, Maryland, Minnesota, New Mexico, Oregon, Tennessee, and selected counties in California, Colorado, and New York.

¶ Final incidence rates will be reported when population estimates for 2010 are available.

** *MMWR* reports on FoodNet surveillance data from 2008 and 2009 used the preceding 3 years, a moving period, for comparison; this report initiates use of 2006–2008 as a stable comparison period.

TABLE 1. Number and incidence of laboratory-confirmed bacterial and parasitic infection cases, hospitalizations, and deaths, by pathogen — Foodborne Diseases Active Surveillance Network, United States, 2010*

	Cases		Hospitalizations		Deaths			
Pathogen	No.	Incidence†	No.	(%)	No.	(CFR)	2010 national health objective§	2020 national health objective¶
Bacteria								
Campylobacter	6,365	13.6	928	(14.6)	8	(0.1)	12.3	8.5
Listeria	125	0.3	112	(89.6)	16	(12.8)	0.24	0.2
Salmonella	8,256	17.6	2,290	(27.7)	29	(0.4)	6.8	11.4
Shigella	1,780	3.8	333	(18.7)	0	(0.0)	—**	—**
STEC O157	442	0.9	184	(41.6)	2	(0.5)	1.0	0.6
STEC non-O157	451	1.0	69	(15.3)	1	(0.2)	—**	—**
Vibrio	193	0.4	45	(23.3)	6	(3.1)	—**	0.2
Yersinia	159	0.3	52	(32.7)	1	(0.6)	—**	0.3
Parasites								
Cryptosporidium	1,290	2.8	234	(18.1)	5	(0.4)	—**	—**
Cyclospora	28	0.1	0	(0.0)	0	(0.0)	—**	—**
Total	**19,089**		**4,247**		**68**			

Abbreviations: CFR = case-fatality ratio; STEC = Shiga toxin–producing *Escherichia coli*.
* Data are preliminary.
† Per 100,000 population.
§ *Healthy People 2010* objective targets for incidence per 100,000 population of *Campylobacter*, *Listeria*, *Salmonella*, and STEC O157 infections.
¶ *Healthy People 2020* objective targets for incidence per 100,000 population of *Campylobacter*, *Listeria*, *Salmonella*, STEC O157, *Vibrio*, and *Yersinia* infections.
** No national health objective exists for these pathogens.

TABLE 2. Incidence* of laboratory-confirmed bacterial and parasitic infection cases, by age group and pathogen — Foodborne Diseases Active Surveillance Network, United States, 2010†

	Age group (yrs)				
Pathogen	<5	5–9	10–19	20–59	≥60
Bacteria					
Campylobacter	24.4	10.6	10.1	13.3	13.9
Listeria	0.3	0.03	0.05	0.1	1.1
Salmonella	69.5	21.4	12.3	12.2	17.0
Shigella	16.4	11.7	2.2	2.5	1.1
STEC O157	3.3	2.5	1.1	0.5	0.7
STEC non-O157	5.0	1.1	1.3	0.5	0.5
Vibrio	0.0	0.3	0.2	0.4	0.8
Yersinia	1.9	0.4	0.2	0.2	0.4
Parasites					
Cryptosporidium	5.1	2.7	2.5	2.6	2.5
Cyclospora	0.0	0.0	0.02	0.1	0.1

Abbreviation: STEC = Shiga toxin–producing *Escherichia coli*.
* Per 100,000 population.
† Data are preliminary.

(76% increase; CI = 45%–113%). Compared with 2006–2008, incidence was significantly higher for Enteritidis (36% increase; CI = 17%–57%) and Newport (47% increase; CI = 22%–78%); incidence of Typhimurium did not change significantly.

For the other pathogens, the number of infections and incidence were: *Campylobacter* (6,365; 13.6 per 100,000), *Shigella* (1,780; 3.8 per 100,000), *Cryptosporidium* (1,290; 2.8 per 100,000), STEC non-O157 (451; 1.0 per 100,000); STEC O157 (442; 0.9 per 100,000), *Vibrio* (193; 0.4 per 100,000), *Yersinia* (159; 0.3 per 100,000), *Listeria* (125; 0.3 per 100,000), and *Cyclospora* (28; 0.1 per 100,000) (Table 1). Incidence was highest in children aged <5 years for *Campylobacter* (24.4 per 100,000), *Shigella* (16.4 per 100,000), *Cryptosporidium* (5.1 per 100,000), STEC non-O157 (5.0 per 100,000), STEC O157 (3.3 per 100,000), and *Yersinia* (1.9 per 100,000) infections; in persons aged 20–59 years for *Cyclospora* (0.1 per 100,000); and in persons aged ≥60 years for *Listeria* (1.1 per 100,000) and *Vibrio* (0.8 per 100,000) infections (Table 2).

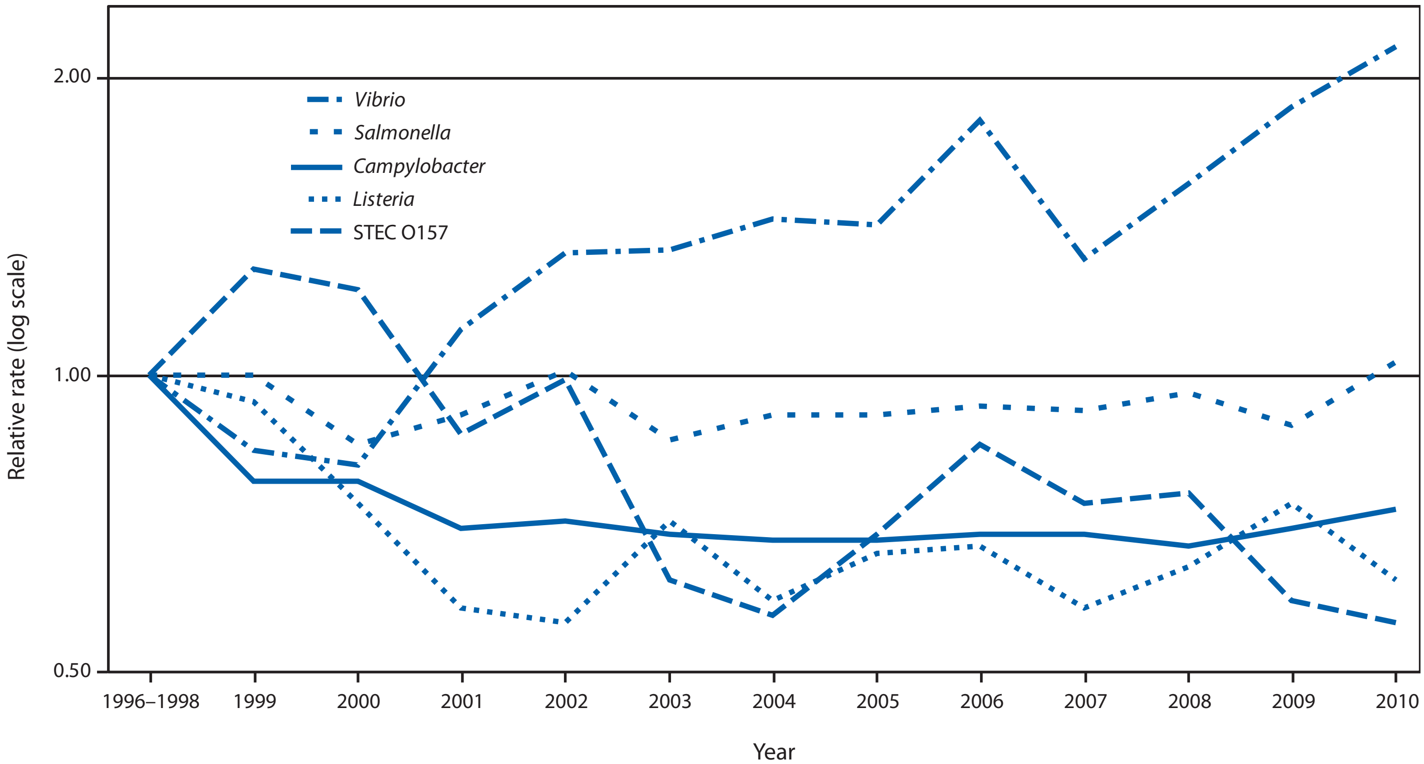
Among the 327 STEC non-O157 infections with O serogroup identified, the most common were O26 (37%), O103 (24%), and O111 (17%). In 2010, a total of 77 (17%) STEC O157 infections were associated with recognized outbreaks; complete information for other pathogens for 2010 is not yet available. Among the 186 (96%) *Vibrio* isolates with species information, the most common were *parahaemolyticus* (57%) and *vulnificus* (13%).

The percentage of patients hospitalized ranged from 0% for *Cyclospora* to 90% for *Listeria* infection. CFRs ranged from 0% for *Cyclospora* and *Shigella* to 13% for *Listeria* infection. Overall, the percentage of patients hospitalized (40%) and CFRs (1.5%) were highest among persons aged ≥60 years.

The overall incidence for the six key pathogens (*Campylobacter, Listeria, Salmonella*, STEC O157, *Yersinia,* and *Vibrio*) was 23% lower in 2010 than during 1996–1998. For individual pathogens, the incidence was significantly lower for *Shigella* (57% decrease; CI = 39%–69%), *Yersinia* (52% decrease; CI = 40%–62%), STEC O157 (44% decrease; CI = 31%–55%), *Listeria* (38% decrease; CI = 22%–51%), and *Campylobacter* (27% decrease; CI = 21%–32%) but higher for *Vibrio* (115% increase; CI = 60%–187%). It did not change significantly for *Cryptosporidium* (Figure 1).

Compared with 2006–2008, the measure of overall incidence was not significantly different in 2010. The

FIGURE 1. Relative rates of laboratory-confirmed infections with *Campylobacter*, STEC O157, *Listeria*, *Salmonella*, and *Vibrio*, compared with 1996–1998 rates, by year — Foodborne Diseases Active Surveillance Network, United States, 1996–2010*



Abbreviation: STEC = Shiga toxin–producing *Escherichia coli*.
* The position of each line indicates the relative change in the incidence of that pathogen compared with 1996–1998. The actual incidences of these infections cannot be determined from this graph.

incidence was significantly lower for STEC O157 (29% decrease; CI = 15%–40%) and *Shigella* (29% decrease; CI = 8%–46%) and significantly higher for *Vibrio* (39% increase; CI = 12%–72%). The incidence did not change significantly for *Campylobacter*, *Cryptosporidium*, *Listeria*, and *Yersinia* (Figure 2).

In 2009, FoodNet identified 66 children with HUS (0.59 cases per 100,000), of whom one died and 38 (58%) were aged <5 years (1.2 case per 100,000). Compared with 2006–2008, the incidence was significantly lower for children aged <5 years (36% decrease; CI = 7%–56%) but not significantly different for all children.

Conclusions and Comment

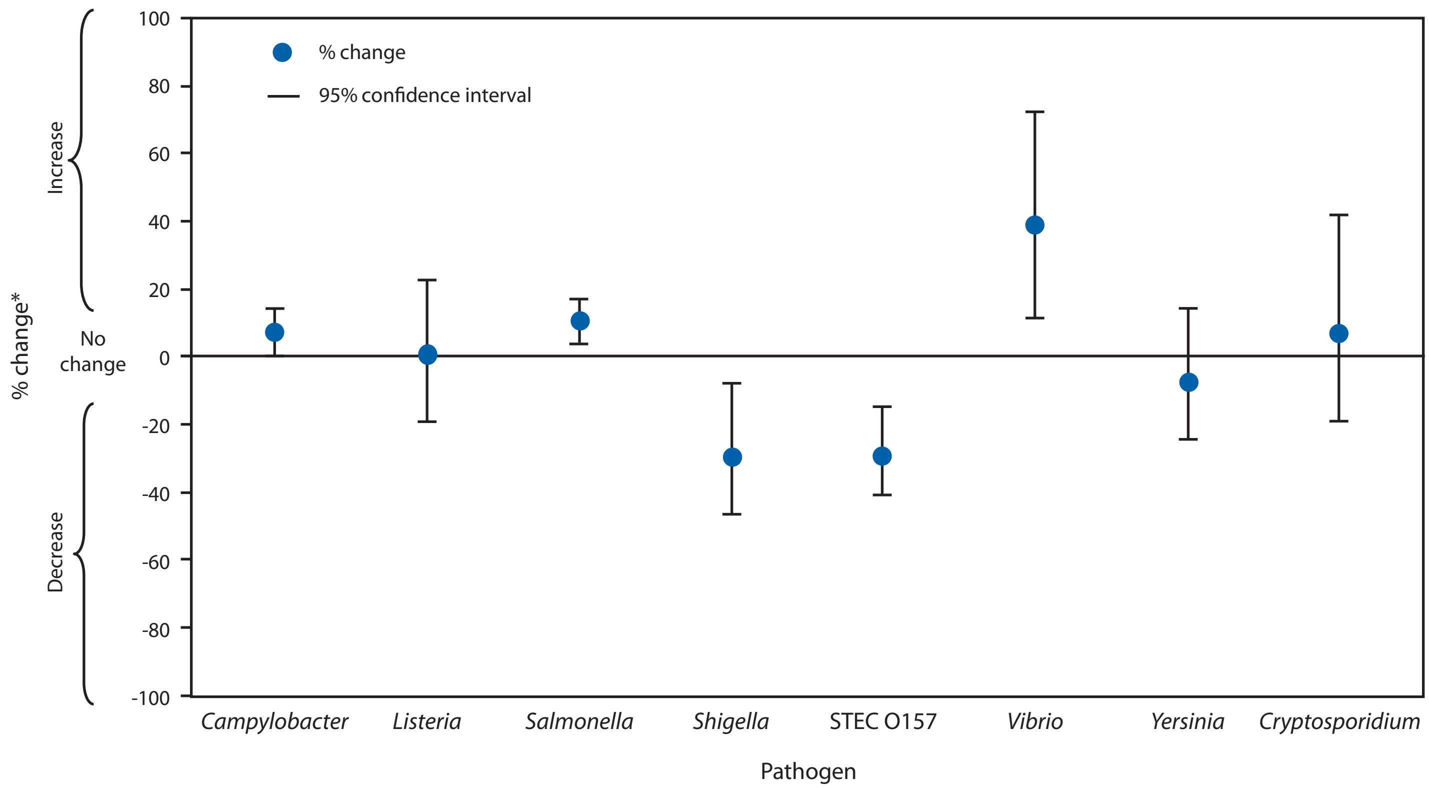
Foodborne infections can be prevented. The incidence of STEC O157 infection has declined to reach the 2010 national health objective target of ≤1 case per 100,000 (*11*).[††] This decline was mirrored by a decrease in HUS. Many factors likely contributed to this success. One is improved detection and investigation of STEC O157 outbreaks, resulting not only in contaminated products being removed before more persons became ill but also in enhanced knowledge about preventing contamination that was used to prevent future outbreaks and illnesses. PulseNet,[§§] the national molecular subtyping network for foodborne bacterial pathogens, can detect widely dispersed outbreaks and has greatly improved the detection and investigation of multistate outbreaks. Others include cleaner slaughter methods, microbial testing, and better inspections in ground beef processing plants (*12*); regulatory agency prohibition of contamination of ground beef with STEC O157 (resulting in 234 beef recalls since STEC O157 was declared an adulterant in ground beef in 1994);[¶¶] improvements in the FDA model Food Code (*13*); and increased awareness in food service establishments and consumers' homes of the risk of consumption of undercooked ground beef (*14*).

Less progress has been made with most other infections, especially *Salmonella*, the most common infection and the most common cause of hospitalization and death tracked in FoodNet. *Salmonella* infections have not declined over the

†† This goal was set as a 50% reduction of the 1997 incidence as measured in the initial FoodNet sites.

§§ Additional information about PulseNet is available at http://www.cdc.gov/pulsenet.
¶¶ A list of recalls issued is available at http://www.fsis.usda.gov/fsis_recalls/index.asp.

FIGURE 2. Estimated percentage change in incidence of laboratory-confirmed bacterial and parasitic infections in 2010, compared with average annual incidence during 2006–2008, by pathogen — Foodborne Diseases Active Surveillance Network, United States



Abbreviation: STEC = Shiga toxin–producing *Escherichia coli*.

* *No significant change* = 95% confidence interval is both above and below the no change line; *significant increase* = entire 95% confidence interval is above the no change line; *significant decrease* = entire 95% confidence interval is below the no change line.

past 15 years and actually increased since 2006–2008. In 2010, the incidence was nearly three times the 2010 national health objective target. *Salmonella* causes an estimated 1.2 million U.S. illnesses annually, approximately 1 million of which are transmitted by food consumed in the United States (*2*). *Salmonella* can contaminate a wide range of foods, and different serotypes tend to have different animal reservoirs and food sources, making control challenging. Most of the decreases in the incidence of *Campylobacter*, *Listeria*, *Shigella*, and *Yersinia* infection since 1996–1998 occurred before 2004. *Vibrio* infections, though less common, have increased.

Other important pathogens transmitted commonly through food (e.g., norovirus, *Clostridium perfringens,* and *Toxoplasma*) are not tracked in FoodNet because tests to detect them are not generally available for clinical laboratories (*2*). Many of the control measures that would decrease illness caused by pathogens tracked in FoodNet would also decrease illnesses caused by pathogens not tracked presently.

Most pathogens tracked in FoodNet live in healthy animals; they contaminate meat and poultry when animals are slaughtered and processed, and they contaminate environments in which fruits, nuts, and vegetables are grown and processed. Exceptions are *Shigella*, which lives in the intestines of ill persons and can contaminate food when persons do not wash their hands after defecating, and *Vibrio*, which lives in marine waters and healthy shellfish, especially oysters.

Children aged <5 years continue to have the highest incidence of most of these infections. However, infected persons aged ≥60 years are at highest risk for hospitalization and death from most of these infections, making prompt diagnosis and treatment, as well as careful attention to food safety, especially important in this age group.

FoodNet surveillance relies on isolation of bacterial pathogens by culture of clinical specimens. However, most illnesses are not laboratory-confirmed; for example, an estimated 29 *Salmonella* illnesses occur for every one that is laboratory-confirmed, and many hospitalizations and deaths caused by *Salmonella* infection are not ascertained (*2*). In addition, changes in laboratory practices, such as increasing use of culture-independent tests for STEC (*15*) and *Campylobacter*, can affect the reported incidence of infection. These tests offer the clinical advantage of more rapid diagnosis; as they are adopted more broadly, they might have an adverse effect on current surveillance strategies (*16*).

Key Points

- Despite broad declines in several foodborne infections, *Salmonella* infections, which cause the largest numbers of illnesses, hospitalizations, and deaths of any pathogen under surveillance in the Foodborne Diseases Active Surveillance Network (FoodNet), have not declined during the past decade.
- In contrast, Shiga toxin–producing *Escherichia coli* (STEC) O157 infection has declined to the 2010 national health objective target of ≤1 case per 100,000.
- *Salmonella* infections can be prevented using approaches similar to those that were successful in reducing STEC O157:
  - **Monitoring food production.** This includes monitoring the safety of ingredients, reducing contamination in factories and slaughterhouses using proven measures, and maintaining refrigeration in transport.
  - **Preventing food contamination.** This includes training restaurant managers in food safety and educating consumers about preparing foods safely at home.
  - **Investigating illnesses and outbreaks.** This includes improving detection and investigation of outbreaks, so contaminated products are removed before more persons become ill and public health and food safety agencies can learn about new food safety challenges and how to address them.

The findings in this report are subject to at least four limitations. First, the proportion transmitted by nonfood routes differs for each pathogen, and the route usually cannot be determined for individual nonoutbreak illnesses. Second, differences in health-care–seeking behaviors between age groups might account for some of the observed differences in incidence (*17*). Third, despite broad demographic similarities between FoodNet and the U.S. population, findings in FoodNet might not be representative of the entire United States (*9*). Finally, the measure of overall incidence was calculated from data for six bacterial pathogens and was influenced strongly by early declines in *Campylobacter*, *Listeria*, and *Yersinia*; this is not a measure of all foodborne illnesses.

Reducing *Salmonella* infection and other foodborne infections will require strong action to prevent food contamination at multiple steps along the farm to the table chain, a prominent lesson from the success in reducing STEC O157 infection. Farmers, the food industry, regulatory agencies, food service, consumers, and public health authorities all have a role. New national health objectives target a 25% reduction in *Salmonella* infections by 2020 and 25%–50% reductions for five other infections and HUS (*18*). Achieving the targets could prevent an estimated 4.6 million illnesses, 68,000 hospitalizations, and 1,470 deaths by 2020.*** It also could save $421 million in direct medical costs††† associated with *Salmonella* infection alone (*9*).

Using and monitoring proven measures to reduce contamination in processing plants (e.g., through the Hazard Analysis Critical Control Point [HACCP] management system) is a successful approach. USDA-FSIS has been tightening standards aimed at preventing *Salmonella* infection, and, in July 2011, will reduce the allowable contamination of whole broiler chickens at processing plants from 20.0% to 7.5% of carcasses (*19*). FDA is implementing the new egg regulations. The Food Safety Modernization Act of 2010 gives FDA much needed authority to regulate food facilities, establish standards for safe produce, recall contaminated foods, and oversee imported foods; the act also calls on CDC and state partners to improve surveillance and response to outbreaks (*20*). Restaurants with managers trained in food safety are less likely to have outbreaks than those without; consumers can advocate for and state and local officials can require such training (*21*). Consumers can cook meat thoroughly and can follow the other food safety practices described at http://www.cdc.gov/winnablebattles/foodsafety/index.html, http://www.foodsafetyworkinggroup.gov, http://www.foodsafety.gov, and http://www.fightbac.org.

*** The total number of illnesses, hospitalizations, and deaths prevented by meeting the *Healthy People* 2020 national objective targets was estimated using the recent foodborne illness estimates as the base for 2010 (*2*) and linear extrapolation to reach the percentage reduction stated in *Healthy People* 2020, assuming stable population size.

††† Direct medical costs averted were calculated using the number of cases prevented each year and the average cost per case calculated as described previously, using an annual discounting rate of 3%.

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References

1. Scallan E, Griffin PM, Angulo FJ, Tauxe RV, Hoekstra RM. Foodborne illness acquired in the United States—unspecified agents. Emerg Infect Dis 2011;17:16–22.
2. Scallan E, Hoekstra RM, Angulo FJ, et al. Foodborne illness acquired in the United States—major pathogens. Emerg Infect Dis 2011;17:7–15.
3. CDC. Surveillance for foodborne disease outbreaks—United States, 2007. MMWR 2010;59:973–9.
4. Todd JE, Mancino L, Lin B. The impact of food away from home on adult diet quality. Washington, DC: US Department of Agriculture, Economic Research Service; 2010. Available at http://www.ers.usda.gov/publications/err90. Accessed May 5, 2011.
5. US Department of Agriculture, Economic Research Service. Food marketing system in the U.S.: food and beverage manufacturing. Washington, DC: US Department of Agriculture, Economic Research Service; 2010. Available at http://www.ers.usda.gov/briefing/foodmarketingsystem/processing.htm. Accessed May 5, 2011.
6. Food and Drug Administration, US Department of Agriculture, Food Safety and Inspection Service. Prevention of *Salmonella* Enteritidis in shell eggs during production, storage, and transportation. Final rule. Fed Regist 2009;74:33029–101.
7. US Department of Agriculture, Economic Research Service. Foodborne illness cost calculator: *Salmonella*. Washington, DC: US Department of Agriculture, Economic Research Service; 2010. Available at http://www.ers.usda.gov/data/foodborneillness/salm_intro.asp. Accessed May 5, 2011.
8. Frenzen PD, Drake A, Angulo FJ. Economic cost of illness due to *Escherichia coli* O157 infections in the United States. J Food Prot 2005;68:2623–30.
9. Scallan E. Activities, achievements, and lessons learned during the first 10 years of the Foodborne Diseases Active Surveillance Network: 1996–2005. Clin Infect Dis 2007;44:718–25.
10. Henao OL, Scallan E, Mahon B, Hoekstra RM. Methods for monitoring trends in the incidence of foodborne diseases: Foodborne Diseases Active Surveillance Network 1996–2008. Foodborne Pathog Dis 2010;7:1421–6.
11. US Department of Health and Human Services. Healthy People 2010 (midcourse review). Washington, DC: US Department of Health and Human Services; 2000.
12. US Department of Agriculture, Food Safety and Inspection Service. Microbiological testing program for *Escherichia coli* O157:H7. Washington, DC: US Department of Agriculture, Food Safety and Inspection Service; 2011. Available at http://www.fsis.usda.gov/science/ground_beef_e.coli_testing_results/index.asp. Accessed May 5, 2011.
13. Food and Drug Administration. Food Code 2009. Washington, DC: US Department of Health and Human Services, Food and Drug Administration; 2009. Available at http://www.fda.gov/food/foodsafety/retailfoodprotection/foodcode/foodcode2009. Accessed May 5, 2011.
14. Patil SR, Cates S, Morales R. Consumer food safety knowledge, practices, and demographic differences: findings from a meta-analysis. J Food Prot 2005;9:1884–94.
15. Hoefer D, Hurd S, Medus C, et al. Laboratory practices for the identification of Shiga toxin-producing *Escherichia coli* in the United States, FoodNet Sites, 2007. Foodborne Pathog Dis 2011;8:555–60.
16. CDC. Recommendations for diagnosis of Shiga toxin–producing *Escherichia coli* infections by clinical laboratories. MMWR 2009;58(No. RR-12).
17. Scallan E, Jones TF, Cronquist A, et al. Factors associated with seeking medical care and submitting a stool sample in estimating the burden of foodborne illness. Foodborne Pathog Dis 2006;3:432–8.
18. US Department of Health and Human Services. Food safety. Objective FS-1: reduce infections caused by key pathogens transmitted commonly through food. Washington, DC: US Department of Health and Human Services; 2011. Available at http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=14. Accessed May 5, 2011.
19. US Department of Agriculture, Food Safety and Inspection Service. New performance standards for *Salmonella* and *Campylobacter* in young chicken and turkey slaughter establishments: response to comments and announcement of implementation schedule. Fed Regist 2011;76:15282–90.
20. Food and Drug Administration. FDA Food Safety Modernization Act. Washington, DC: US Department of Health and Human Services, Food and Drug Administration; 2011. Available at http://www.fda.gov/food/foodsafety/fsma/default.htm. Accessed May 5, 2011.
21. Hedberg CW, Smith SJ, Kirkland E, et al. Systematic environmental evaluations to identify food safety differences between outbreak and nonoutbreak restaurants. J Food Prot 2006;69:2697–702.

Notes from the Field

Detection of bla_{NDM-1} Carbapenem Resistance in a Clinical Isolate of *Providencia stuartii* in a U.S./Coalition Medical Facility — Afghanistan, 2011

On March 4, 2011, an isolate of *Providencia stuartii* obtained on January 26 from the blood of a burn patient in a U.S./coalition medical facility in Bagram, Afghanistan, was found to have the bla_{NDM-1} carbapenemase gene that confers resistance to antibiotics of the carbapenem family. As with other New Delhi metallo-ß-lactamase (NDM-1)–producing strains, the isolate was resistant to carbapenems and susceptible to aztreonam, a monobactam. The patient was an Afghanistan resident transferred January 20 from a local hospital in Kabul, Afghanistan, 5 days after injury, to the intensive-care unit in Bagram for treatment of severe burns and inhalation injury caused by a natural gas explosion. At the local hospital, the patient received unspecified antibiotics, which were changed to levofloxacin, piperacillin/tazobactam, and vancomycin on arrival at Bagram. No history of prior illness or travel exposures was obtained. The patient was coinfected with a carbapenem-resistant, bla_{NDM-1} – negative *Pseudomonas aeruginosa*, a less resistant *P. aeruginosa*, and *Proteus mirabilis*, and ultimately died from infection. This is the first report of bla_{NDM-1} in *P. stuartii* and of this resistance mechanism within the U.S. military health-care system (MHS) and Afghanistan.

Since June 25, 2010, when three cases of *Enterobacteriaceae* producing NDM-1 were first described in the United States (*1*), NDM-1 has been reported throughout the world and among different species of bacteria. This primarily plasmid-borne metallo-ß-lactamase confers resistance to all ß-lactams, with the exception of aztreonam, and poses a serious challenge to infection control and therapy (*2*). Bla_{NDM-1} has been reported once in *Providencia* species as *P. rettgeri*, from a patient in India (*3*). That strain was classified as intermediately susceptible to imipenem (or meropenem), in contrast to the *P. stuartii* strain, which was classified as resistant by each of three automated susceptibility testing systems.

Ongoing surveillance, effective infection control efforts, and advanced susceptibility testing of isolates offer the best chance to limit the spread of resistant nosocomial pathogens. The Multidrug-Resistant Organism Repository and Surveillance Network, an initiative of the U.S. Army Medical Command and the Walter Reed Army Institute of Research, provides these services throughout the U.S. Army. This case is an early warning to laboratories that are likely to identify carbapenem-resistant bacteria from MHS patients.

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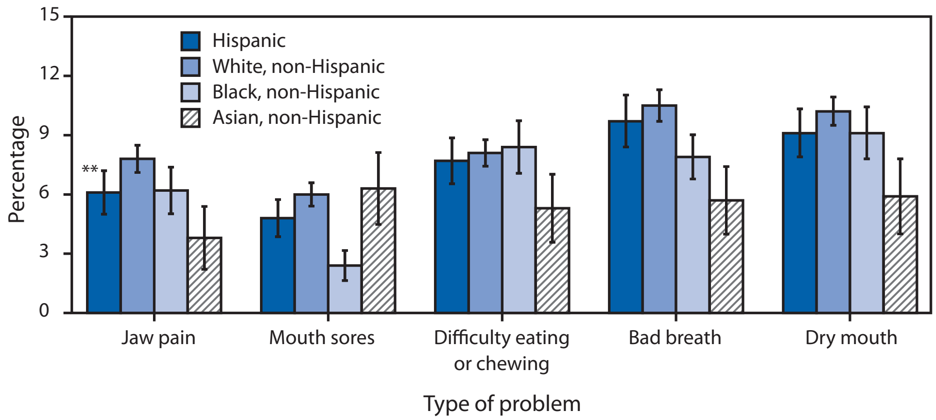
References

1. CDC. Detection of *Enterobacteriaceae* isolates carrying metallo-beta-lactamase—United States, 2010. MMWR 2010;59:750.
2. Yong D, Toleman MA, Giske, CG, et al. Characterization of a new metallo-beta-lactamase gene, bla(NDM-1), and a novel erythromycin esterase gene carried on a unique genetic structure in *Klebsiella pneumoniae* sequence type 14 from India. Antimicrob Agents Chemother 2009;53:5046–54.
3. Nordmann P, Poirel L, Carrër A, Toleman MA, Walsh TR. How to detect NDM-1 producers. J Clin Microbiol 2011;49:718–21.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Adults* Aged 18–64 Years Who Have Had Problems Involving the Mouth,† by Race/Ethnicity§ and Type of Problem — National Health Interview Survey, United States, 2008¶



* Includes dentate and edentulous adults.

† Based on response to the question, "During the past 6 months, have you had any of the following problems that lasted more than a day? Pain in your jaw joint? Sores in your mouth? Difficulty eating or chewing? Bad breath? Dry mouth?

§ Persons of Hispanic ethnicity might be of any race or combination of races. Non-Hispanic persons of a single race other than those shown or of multiple race are not shown separately because of small sample sizes.

¶ Estimates are based on household interviews of a sample of the civilian noninstitutionalized U.S. adult population. Unknowns were not included in the denominators when calculating percentages.

** 95% confidence interval.

Among adults aged 18–64 years, non-Hispanic Asian adults experienced fewer problems with jaw pain, difficulty eating or chewing, bad breath, and dry mouth than Hispanic, non-Hispanic white, and non-Hispanic black adults. Non-Hispanic blacks (2.4%) were less likely to have experienced mouth sores than Hispanics (4.8%), non-Hispanic whites (6.0%), and non-Hispanic Asians (6.3%).

Source: National Health Interview Survey, 2008 data. Available at http://www.cdc.gov/nchs/nhis.htm.

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 June 4, 2011 (22nd 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	75	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	—	14	1	NN	NN	NN	NN	NN	
Botulism, total	—	28	3	107	118	145	144	165	
foodborne	—	5	0	7	10	17	32	20	
infant	—	19	2	75	83	109	85	97	
other (wound and unspecified)	—	4	1	25	25	19	27	48	
Brucellosis	1	27	2	114	115	80	131	121	FL (1)
Chancroid	—	11	0	30	28	25	23	33	
Cholera	—	18	0	13	10	5	7	9	
Cyclosporiasis§	—	44	4	179	141	139	93	137	
Diphtheria	—	—	—	—	—	—	—	—	
Haemophilus influenzae,** invasive disease (age <5 yrs):									
serotype b	—	2	0	23	35	30	22	29	
nonserotype b	—	46	4	196	236	244	199	175	
unknown serotype	5	113	3	225	178	163	180	179	PA (1), OH (1), MO (2), GA (1)
Hansen disease§	—	22	2	96	103	80	101	66	
Hantavirus pulmonary syndrome§	—	6	1	20	20	18	32	40	
Hemolytic uremic syndrome, postdiarrheal§	—	34	5	266	242	330	292	288	
Influenza-associated pediatric mortality§,††	—	102	2	61	358	90	77	43	
Listeriosis	1	162	12	818	851	759	808	884	NY (1)
Measles§§	7	105	3	63	71	140	43	55	NY (2), NYC (4), CA (1)
Meningococcal disease, invasive¶¶:									
A, C, Y, and W-135	—	75	6	278	301	330	325	318	
serogroup B	—	50	3	133	174	188	167	193	
other serogroup	—	6	0	11	23	38	35	32	
unknown serogroup	3	223	11	411	482	616	550	651	NY (1), FL (1), CO (1)
Novel influenza A virus infections***	—	1	0	4	43,774	2	4	NN	
Plague	—	1	0	2	8	3	7	17	
Poliomyelitis, paralytic	—	—	—	—	1	—	—	—	
Polio virus Infection, nonparalytic§	—	—	—	—	—	—	—	NN	
Psittacosis§	—	1	0	4	9	8	12	21	
Q fever, total§	—	25	3	132	113	120	171	169	
acute	—	15	2	107	93	106	—	—	
chronic	—	10	0	25	20	14	—	—	
Rabies, human	—	—	0	2	4	2	1	3	
Rubella†††	—	3	0	6	3	16	12	11	
Rubella, congenital syndrome	—	—	0	—	2	—	—	1	
SARS-CoV§	—	—	—	—	—	—	—	—	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	—	54	3	160	161	157	132	125	
Syphilis, congenital (age <1 yr)§§§	—	62	6	364	423	431	430	349	
Tetanus	—	2	0	10	18	19	28	41	
Toxic-shock syndrome (staphylococcal)§	—	38	2	82	74	71	92	101	
Trichinellosis	—	7	0	7	13	39	5	15	
Tularemia	—	10	4	124	93	123	137	95	
Typhoid fever	3	134	7	468	397	449	434	353	NY (1), CA (2)
Vancomycin-intermediate *Staphylococcus aureus*§	—	23	1	91	78	63	37	6	
Vancomycin-resistant *Staphylococcus aureus*§	—	—	—	2	1	—	2	1	
Vibriosis (noncholera *Vibrio* species infections)§	7	130	9	847	789	588	549	NN	MD (1), FL (4), TX (2)
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 June 4, 2011 (22nd 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, 106 influenza-associated pediatric deaths occurring during the 2010-11 influenza season have been reported.

§§ Of the seven measles cases reported for the current week, three were imported and four were indigenous.

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

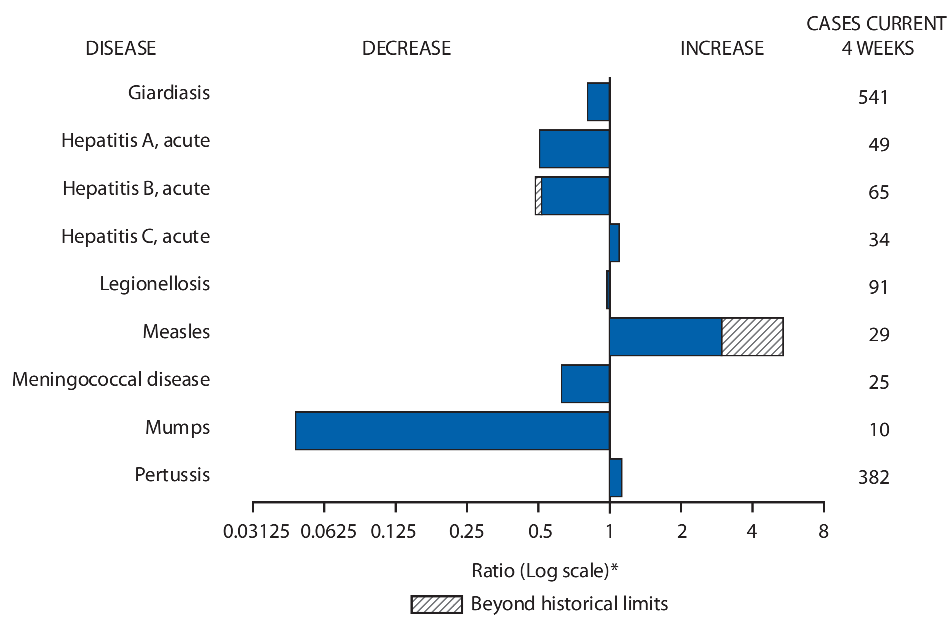
*** CDC discontinued reporting of individual confirmed and probable cases of 2009 pandemic influenza A (H1N1) virus infections on July 24, 2009. During 2009, four cases of human infection with novel influenza A viruses, different from the 2009 pandemic influenza A (H1N1) strain, were reported to CDC. 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 June 4, 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

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TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending June 4, 2011, and June 5, 2010 (22nd 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	10,175	25,275	31,175	520,792	539,258	71	0	569	6,404	NN	44	113	374	1,606	2,469
New England	385	837	2,043	16,602	16,201	—	0	1	1	NN	—	5	24	77	214
Connecticut	—	228	1,557	2,620	3,674	—	0	0	—	NN	—	0	19	19	77
Maine†	—	55	100	1,194	1,047	—	0	0	—	NN	—	0	7	2	25
Massachusetts	339	404	861	9,312	8,536	—	0	0	—	NN	—	2	9	32	51
New Hampshire	7	53	81	1,208	932	—	0	1	1	NN	—	1	3	9	29
Rhode Island†	—	66	154	1,620	1,491	—	0	0	—	NN	—	0	2	1	9
Vermont†	39	26	84	648	521	—	0	0	—	NN	—	1	5	14	23
Mid. Atlantic	1,113	3,296	5,069	68,713	70,962	—	0	1	1	NN	5	15	38	248	240
New Jersey	—	492	684	9,062	11,023	—	0	0	—	NN	—	1	4	16	9
New York (Upstate)	555	710	2,099	14,937	13,449	—	0	0	—	NN	1	4	13	53	52
New York City	81	1,142	2,612	23,109	26,698	—	0	0	—	NN	—	2	6	23	24
Pennsylvania	477	953	1,198	21,605	19,792	—	0	1	1	NN	4	8	26	156	155
E.N. Central	721	3,946	7,039	73,402	84,464	1	0	3	21	NN	10	27	137	376	651
Illinois	—	1,033	1,320	12,201	25,076	—	0	0	—	NN	—	2	21	4	83
Indiana	139	450	3,376	11,827	6,832	—	0	0	—	NN	—	4	15	39	106
Michigan	369	941	1,398	19,874	21,574	1	0	3	14	NN	5	5	18	86	126
Ohio	125	1,000	1,137	20,333	21,521	—	0	3	7	NN	4	7	24	131	143
Wisconsin	88	454	558	9,167	9,461	—	0	0	—	NN	1	8	65	116	193
W.N. Central	401	1,429	1,618	29,560	30,458	—	0	1	1	NN	12	13	99	126	381
Iowa	7	206	240	4,258	4,567	—	0	0	—	NN	—	4	25	19	81
Kansas	1	187	287	3,959	4,138	—	0	0	—	NN	—	1	6	4	35
Minnesota	—	290	354	5,104	6,520	—	0	0	—	NN	—	2	22	—	120
Missouri	340	521	771	11,726	10,872	—	0	0	—	NN	4	3	29	43	58
Nebraska†	46	102	218	2,519	2,141	—	0	1	1	NN	1	3	26	46	41
North Dakota	—	42	90	587	903	—	0	0	—	NN	7	0	9	7	6
South Dakota	7	64	93	1,407	1,317	—	0	0	—	NN	—	1	6	7	40
S. Atlantic	2,752	5,014	6,194	109,014	109,047	—	0	2	3	NN	7	18	52	300	374
Delaware	74	83	220	1,871	1,826	—	0	0	—	NN	—	0	1	2	3
District of Columbia	—	105	180	1,947	2,280	—	0	0	—	NN	—	0	1	3	2
Florida	510	1,483	1,706	31,368	31,484	—	0	0	—	NN	4	6	19	85	148
Georgia	402	811	2,416	16,104	19,762	—	0	0	—	NN	—	5	11	101	122
Maryland†	300	485	1,125	9,077	9,573	—	0	2	3	NN	1	1	3	18	13
North Carolina	413	756	1,477	19,595	19,147	—	0	0	—	NN	—	0	16	23	26
South Carolina†	508	531	946	12,244	10,778	—	0	0	—	NN	2	2	8	36	19
Virginia†	448	661	970	15,016	12,631	—	0	0	—	NN	—	1	9	24	35
West Virginia	97	76	121	1,792	1,566	—	0	0	—	NN	—	0	5	8	6
E.S. Central	480	1,800	3,315	37,557	37,406	—	0	0	—	NN	—	4	19	56	80
Alabama†	—	543	1,552	10,550	10,280	—	0	0	—	NN	—	1	13	8	33
Kentucky	256	268	2,352	6,659	6,447	—	0	0	—	NN	—	1	6	19	24
Mississippi	—	390	780	7,898	9,354	—	0	0	—	NN	—	0	2	9	5
Tennessee†	224	591	795	12,450	11,325	—	0	0	—	NN	—	1	5	20	18
W.S. Central	2,335	3,290	4,723	68,636	76,574	—	0	1	1	NN	2	7	33	77	121
Arkansas†	242	303	440	6,854	6,555	—	0	0	—	NN	1	0	3	6	13
Louisiana	344	368	1,052	3,931	12,563	—	0	1	1	NN	—	0	6	10	17
Oklahoma	366	231	1,371	4,950	5,581	—	0	0	—	NN	—	0	8	—	22
Texas†	1,383	2,369	3,107	52,901	51,875	—	0	0	—	NN	1	4	24	61	69
Mountain	779	1,666	2,155	34,895	34,816	55	0	424	4,923	NN	4	10	30	168	201
Arizona	118	514	678	9,526	11,375	53	0	419	4,849	NN	—	1	3	11	14
Colorado	287	413	849	10,793	7,986	—	0	0	—	NN	2	2	10	47	50
Idaho†	—	63	199	1,019	1,612	—	0	0	—	NN	1	2	7	33	34
Montana†	46	63	88	1,466	1,305	—	0	1	1	NN	—	1	5	22	26
Nevada†	189	194	380	4,553	4,237	2	0	4	37	NN	—	0	7	3	5
New Mexico†	139	204	1,183	4,275	4,551	—	0	4	29	NN	1	2	12	37	35
Utah	—	126	175	2,500	2,845	—	0	2	4	NN	—	1	5	9	25
Wyoming†	—	38	90	763	905	—	0	2	3	NN	—	0	3	6	12
Pacific	1,209	3,798	6,559	82,413	79,330	15	0	145	1,453	NN	4	12	27	178	207
Alaska	—	115	157	2,371	2,649	—	0	0	—	NN	—	0	3	4	2
California	973	2,913	5,763	63,662	59,863	15	0	145	1,452	NN	3	7	19	103	118
Hawaii	1	108	141	2,104	2,673	—	0	0	—	NN	—	0	0	—	1
Oregon	—	238	524	5,295	5,101	—	0	1	1	NN	—	4	13	67	58
Washington	235	412	520	8,981	9,044	—	0	0	—	NN	1	1	9	4	28
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	NN	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	NN	—	—	—	—	—
Guam	—	9	44	189	82	—	0	0	—	NN	—	0	0	—	—
Puerto Rico	58	105	351	2,554	2,691	—	0	0	—	NN	N	0	0	N	N
U.S. Virgin Islands	—	14	27	312	234	—	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 June 4, 2011, and June 5, 2010 (22nd week)*

Reporting area	Dengue Virus Infection: Dengue Fever† Current week	Dengue Fever† Previous 52 weeks Med	Dengue Fever† Previous 52 weeks Max	Dengue Fever† Cum 2011	Dengue Fever† Cum 2010	Dengue Hemorrhagic Fever§ Current week	Dengue Hemorrhagic Fever§ Previous 52 weeks Med	Dengue Hemorrhagic Fever§ Previous 52 weeks Max	Dengue Hemorrhagic Fever§ Cum 2011	Dengue Hemorrhagic Fever§ Cum 2010
United States	—	5	52	28	108	—	0	2	—	3
New England	—	0	3	1	1	—	0	0	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—
Maine¶	—	0	2	—	1	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	1	—	—	—	0	0	—	—
Vermont¶	—	0	1	1	—	—	0	0	—	—
Mid. Atlantic	—	1	25	7	40	—	0	1	—	2
New Jersey	—	0	5	—	4	—	0	0	—	—
New York (Upstate)	—	0	5	—	5	—	0	1	—	1
New York City	—	1	17	—	26	—	0	1	—	1
Pennsylvania	—	0	3	7	5	—	0	0	—	—
E.N. Central	—	0	5	5	9	—	0	1	—	—
Illinois	—	0	1	2	—	—	0	0	—	—
Indiana	—	0	2	1	2	—	0	0	—	—
Michigan	—	0	2	—	2	—	0	0	—	—
Ohio	—	0	2	—	5	—	0	0	—	—
Wisconsin	—	0	2	2	—	—	0	1	—	—
W.N. Central	—	0	6	—	8	—	0	1	—	—
Iowa	—	0	1	—	—	—	0	0	—	—
Kansas	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	1	—	7	—	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	10	37	—	0	1	—	1
Delaware	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
Florida	—	2	14	9	32	—	0	1	—	1
Georgia	—	0	2	—	2	—	0	0	—	—
Maryland¶	—	0	0	—	—	—	0	0	—	—
North Carolina	—	0	2	1	—	—	0	0	—	—
South Carolina¶	—	0	3	—	1	—	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	1	3	—	0	0	—	—
Arizona	—	0	2	1	1	—	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	7	4	10	—	0	0	—	—
Alaska	—	0	0	—	1	—	0	0	—	—
California	—	0	5	1	6	—	0	0	—	—
Hawaii	—	0	0	—	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—
Washington	—	0	2	3	3	—	0	0	—	—
Territories										
American Samoa	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	52	454	226	1,860	—	2	20	1	58
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

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* 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 June 4, 2011, and June 5, 2010 (22nd week)*

Reporting area	Ehrlichiosis/Anaplasmosis† *Ehrlichia chaffeensis* Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	*Anaplasma phagocytophilum* Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Undetermined Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	6	6	109	69	156	3	19	145	35	362	1	1	13	16	27
New England	—	0	2	2	3	—	1	10	4	24	—	0	1	—	1
Connecticut	—	0	0	—	—	—	0	6	—	5	—	0	0	—	—
Maine§	—	0	1	1	2	—	0	2	2	7	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	1	1	1	—	0	2	2	7	—	0	1	—	1
Rhode Island§	—	0	1	—	—	—	0	6	—	5	—	0	0	—	—
Vermont§	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
Mid. Atlantic	—	1	8	5	27	3	4	17	10	38	—	0	2	1	4
New Jersey	—	0	6	—	22	—	1	7	—	23	—	0	1	—	—
New York (Upstate)	—	0	7	3	4	3	3	14	9	15	—	0	2	1	3
New York City	—	0	2	2	—	—	0	3	1	—	—	0	0	—	—
Pennsylvania	—	0	1	—	1	—	0	1	—	—	—	0	1	—	1
E.N. Central	1	0	4	6	14	—	3	45	3	132	1	0	6	5	13
Illinois	—	0	2	3	7	—	0	2	—	—	—	0	2	1	1
Indiana	—	0	0	—	—	—	0	0	—	—	1	0	3	3	5
Michigan	—	0	1	1	—	—	0	1	—	—	—	0	1	1	—
Ohio	1	0	3	2	—	—	0	1	1	—	—	0	0	—	—
Wisconsin	—	0	2	—	7	—	3	45	2	132	—	0	3	—	7
W.N. Central	—	1	13	17	28	—	3	77	5	156	—	0	11	6	—
Iowa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Kansas	—	0	2	1	—	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	12	—	—	—	3	75	1	156	—	0	11	—	—
Missouri	—	0	13	16	28	—	0	2	4	—	—	0	3	6	—
Nebraska§	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
North Dakota	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
South Dakota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
S. Atlantic	4	3	18	33	55	—	1	7	9	9	—	0	1	—	—
Delaware	—	0	2	5	7	—	0	1	—	1	—	0	0	—	—
District of Columbia	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Florida	3	0	2	7	2	—	0	1	1	—	—	0	0	—	—
Georgia	—	0	3	4	9	—	0	1	3	—	—	0	1	—	—
Maryland§	1	0	3	4	4	—	0	2	—	5	—	0	1	—	—
North Carolina	—	0	13	6	19	—	0	4	5	1	—	0	0	—	—
South Carolina§	—	0	2	—	—	—	0	1	—	—	—	0	0	—	—
Virginia§	—	1	8	7	14	—	0	2	—	2	—	0	1	—	—
West Virginia	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
E.S. Central	1	0	11	6	20	—	0	2	4	3	—	0	2	1	7
Alabama§	—	0	3	—	4	—	0	2	2	—	N	0	0	N	N
Kentucky	—	0	2	2	1	—	0	0	—	—	—	0	1	—	1
Mississippi	—	0	1	—	1	—	0	1	—	1	—	0	0	—	1
Tennessee§	1	0	7	4	14	—	0	2	2	2	—	0	1	1	5
W.S. Central	—	0	87	—	8	—	0	9	—	—	—	0	1	—	—
Arkansas§	—	0	5	—	—	—	0	2	—	—	—	0	0	—	—
Louisiana	—	0	0	—	1	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	82	—	6	—	0	7	—	—	—	0	0	—	—
Texas§	—	0	1	—	1	—	0	1	—	—	—	0	1	—	—
Mountain	—	0	0	—	—	—	0	0	—	—	—	0	1	2	—
Arizona	—	0	0	—	—	—	0	0	—	—	—	0	1	2	—
Colorado	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Idaho§	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Montana§	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Nevada§	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
New Mexico§	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Utah	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Wyoming§	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	1	—	1	—	0	0	—	—	—	0	1	1	2
Alaska	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
California	—	0	1	—	1	—	0	0	—	—	—	0	1	1	2
Hawaii	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Oregon	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Washington	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Puerto Rico	N	0	0	N	N	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.
† Cumulative total *E. ewingii* cases reported for year 2010 = 10, and 1 case reported 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 June 4, 2011, and June 5, 2010 (22nd week)*

	Giardiasis					Gonorrhea					*Haemophilus influenzae*, invasive† All ages, all serotypes				
	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
Reporting area		Med	Max				Med	Max				Med	Max		
United States	123	341	549	5,181	7,333	2,170	5,855	7,486	114,196	123,795	37	61	141	1,357	1,399
New England	1	28	55	392	622	56	100	206	1,889	2,154	—	3	9	77	81
Connecticut	—	5	12	80	114	—	41	150	680	974	—	0	6	17	17
Maine§	1	3	11	42	71	—	2	7	60	88	—	0	2	9	4
Massachusetts	—	13	25	176	265	52	49	80	959	881	—	2	6	37	43
New Hampshire	—	2	10	29	73	4	2	7	53	64	—	0	2	8	7
Rhode Island§	—	1	7	7	31	—	6	15	120	119	—	0	2	3	7
Vermont§	—	3	10	58	68	—	0	8	17	28	—	0	3	3	3
Mid. Atlantic	15	61	106	1,025	1,233	213	716	1,121	14,691	14,070	11	11	32	270	266
New Jersey	—	7	22	76	168	—	118	172	2,340	2,333	—	2	7	45	44
New York (Upstate)	12	22	72	357	420	81	113	271	2,270	2,097	8	3	18	74	73
New York City	—	17	30	314	348	17	238	497	4,772	4,934	—	2	5	44	49
Pennsylvania	3	15	27	278	297	115	260	364	5,309	4,706	3	4	11	107	100
E.N. Central	19	53	99	847	1,267	240	1,049	2,091	19,251	22,591	6	11	19	242	218
Illinois	—	10	31	146	290	—	296	369	3,046	6,100	—	3	9	65	77
Indiana	—	7	15	86	148	24	117	1,018	3,062	1,892	—	2	7	40	44
Michigan	2	11	25	174	270	134	248	490	4,995	5,939	—	1	4	27	17
Ohio	17	16	29	320	346	44	320	383	6,277	6,715	6	3	7	80	52
Wisconsin	—	9	35	121	213	38	98	130	1,871	1,945	—	1	5	30	28
W.N. Central	19	29	73	351	766	122	295	363	6,012	5,837	9	4	9	64	95
Iowa	3	5	12	86	110	2	36	57	773	723	—	0	0	—	1
Kansas	—	3	10	30	93	—	39	62	748	838	—	0	2	5	12
Minnesota	—	9	33	—	287	—	38	62	680	901	—	1	5	—	35
Missouri	4	8	26	129	148	114	143	181	3,031	2,703	3	1	5	33	35
Nebraska§	—	4	9	69	80	5	24	49	495	456	—	0	3	18	7
North Dakota	12	0	6	12	8	—	3	11	54	75	6	0	2	7	5
South Dakota	—	2	5	25	40	1	11	20	231	141	—	0	1	1	—
S. Atlantic	20	67	127	1,048	1,466	602	1,426	1,879	28,436	32,160	7	15	30	346	352
Delaware	—	0	5	9	14	15	17	48	393	418	—	0	1	1	4
District of Columbia	—	1	5	11	21	—	38	70	718	822	—	0	0	—	—
Florida	12	34	75	462	768	159	379	486	7,870	8,332	3	5	12	127	86
Georgia	1	14	51	335	285	98	268	891	4,730	6,586	2	3	7	73	82
Maryland§	—	4	9	81	138	78	132	246	2,281	2,726	2	1	5	27	26
North Carolina	N	0	0	N	N	35	266	490	6,294	6,357	—	2	9	38	50
South Carolina§	6	2	9	43	49	136	161	257	3,416	3,241	—	1	5	25	49
Virginia§	1	8	32	90	175	74	122	189	2,376	3,479	—	1	8	46	44
West Virginia	—	0	8	17	16	7	14	26	358	199	—	0	9	9	11
E.S. Central	1	4	11	60	62	108	490	1,007	9,823	9,995	—	3	10	88	85
Alabama§	1	4	11	60	62	—	159	403	3,162	2,998	—	1	4	28	13
Kentucky	N	0	0	N	N	71	73	712	1,731	1,636	—	1	4	13	14
Mississippi	N	0	0	N	N	—	115	216	2,053	2,560	—	0	2	9	7
Tennessee§	N	0	0	N	N	37	142	194	2,877	2,801	—	1	4	38	51
W.S. Central	1	5	17	66	139	540	855	1,664	17,076	20,356	1	3	26	62	64
Arkansas§	1	2	9	36	39	80	100	138	2,067	1,895	1	0	3	14	10
Louisiana	—	3	12	30	59	48	112	509	1,012	3,508	—	0	4	22	16
Oklahoma	—	0	5	—	41	93	73	332	1,389	1,607	—	1	19	25	33
Texas§	N	0	0	N	N	319	598	867	12,608	13,346	—	0	4	1	5
Mountain	16	29	58	410	677	104	190	256	3,934	3,904	2	5	12	132	166
Arizona	2	3	8	48	60	29	63	92	1,304	1,361	—	2	6	59	65
Colorado	12	12	27	191	285	27	49	92	941	1,106	2	1	5	28	41
Idaho§	1	3	9	50	91	—	2	14	42	48	—	0	2	7	8
Montana§	—	1	6	17	57	—	2	5	39	52	—	0	1	2	2
Nevada§	1	1	11	29	25	47	33	103	860	739	—	0	2	9	5
New Mexico§	—	2	6	21	33	1	27	98	650	434	—	1	4	21	21
Utah	—	5	13	42	105	—	4	10	79	149	—	0	3	6	19
Wyoming§	—	1	5	12	21	—	1	4	19	15	—	0	1	—	5
Pacific	31	52	129	982	1,101	185	629	807	13,084	12,728	1	3	10	76	72
Alaska	—	2	6	24	37	—	21	34	402	606	—	0	2	8	12
California	25	33	68	671	676	154	520	695	10,790	10,296	—	0	6	12	14
Hawaii	—	1	4	13	24	5	15	26	282	282	—	0	2	11	11
Oregon	—	8	20	156	207	—	22	40	479	437	1	1	6	44	31
Washington	6	9	57	118	157	26	59	86	1,131	1,107	—	0	2	1	4
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	1	—	0	5	6	5	—	0	0	—	—
Puerto Rico	—	1	7	10	38	5	6	12	155	117	—	0	0	—	1
U.S. Virgin Islands	—	0	0	—	—	—	3	7	47	46	—	0	0	—	—

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† 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 June 4, 2011, and June 5, 2010 (22nd week)*

Reporting area	Hepatitis (viral, acute), by type: A — Current week	A — Previous 52 weeks Med	A — Previous 52 weeks Max	A — Cum 2011	A — Cum 2010	B — Current week	B — Previous 52 weeks Med	B — Previous 52 weeks Max	B — Cum 2011	B — Cum 2010	C — Current week	C — Previous 52 weeks Med	C — Previous 52 weeks Max	C — Cum 2011	C — Cum 2010
United States	4	27	74	454	650	20	59	167	888	1,310	2	17	39	361	323
New England	—	1	6	12	54	—	1	4	20	29	—	1	4	18	28
Connecticut	—	0	4	5	12	—	0	3	6	8	—	0	3	12	15
Maine†	—	0	1	1	3	—	0	2	5	9	—	0	2	3	2
Massachusetts	—	0	5	3	34	—	0	3	8	7	—	0	1	1	11
New Hampshire	—	0	1	—	—	—	0	1	1	4	N	0	0	N	N
Rhode Island†	—	0	1	1	5	U	0	0	U	U	U	0	0	U	U
Vermont†	—	0	1	2	—	—	0	1	—	1	—	0	1	2	—
Mid. Atlantic	—	4	12	74	104	2	5	11	108	136	—	1	6	27	39
New Jersey	—	1	4	10	29	—	1	4	23	38	—	0	4	—	8
New York (Upstate)	—	1	4	20	24	—	1	9	20	21	—	1	4	15	18
New York City	—	1	6	23	29	—	1	5	29	42	—	0	1	—	1
Pennsylvania	—	1	3	21	22	2	1	4	36	35	—	0	2	12	12
E.N. Central	—	3	9	68	77	—	7	23	116	212	—	2	10	82	38
Illinois	—	1	3	11	20	—	2	7	30	51	—	0	1	1	—
Indiana	—	0	3	8	9	—	1	6	12	31	—	0	4	29	14
Michigan	—	1	5	25	25	—	2	5	37	56	—	1	7	49	19
Ohio	—	1	5	22	14	—	1	16	25	49	—	0	1	2	3
Wisconsin	—	0	2	2	9	—	1	3	12	25	—	0	1	1	2
W.N. Central	1	1	25	16	22	1	2	16	52	56	—	0	6	1	6
Iowa	—	0	3	1	4	—	0	1	4	10	—	0	0	—	—
Kansas	—	0	2	3	7	1	0	2	6	3	—	0	1	1	—
Minnesota	—	0	22	2	1	—	0	15	2	2	—	0	6	—	3
Missouri	1	0	1	5	8	—	1	3	33	31	—	0	1	—	2
Nebraska†	—	0	4	3	2	—	0	3	6	9	—	0	1	—	1
North Dakota	—	0	3	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	2	—	—	0	1	1	1	—	0	0	—	—
S. Atlantic	—	5	14	94	139	11	15	33	252	371	—	4	10	80	76
Delaware	—	0	1	1	5	—	0	1	—	17	U	0	0	U	U
District of Columbia	—	0	0	—	1	—	0	0	—	3	—	0	0	—	2
Florida	—	2	7	34	47	5	4	11	85	130	—	1	5	21	21
Georgia	—	1	4	24	14	—	2	8	42	78	—	1	3	13	9
Maryland†	—	0	2	10	12	3	1	4	25	28	—	0	2	12	11
North Carolina	—	0	4	8	27	—	2	16	57	31	—	0	4	19	21
South Carolina†	—	0	2	4	17	—	1	4	13	22	—	0	1	—	—
Virginia†	—	1	6	9	15	—	1	7	27	34	—	0	2	7	6
West Virginia	—	0	5	4	1	3	0	18	3	28	—	0	5	8	6
E.S. Central	2	0	6	15	18	—	8	14	160	129	—	3	8	62	56
Alabama†	—	0	2	—	4	—	1	4	33	28	—	0	1	3	2
Kentucky	—	0	6	2	9	—	3	8	49	39	—	2	6	28	37
Mississippi	—	0	1	2	1	—	1	3	14	14	U	0	0	U	U
Tennessee†	2	0	5	11	4	—	4	8	64	48	—	1	5	31	17
W.S. Central	—	2	15	33	60	3	9	67	96	196	1	2	11	39	27
Arkansas†	—	0	1	—	—	—	1	4	16	30	—	0	1	—	—
Louisiana	—	0	1	1	4	—	1	4	18	22	—	0	2	4	—
Oklahoma	—	0	4	1	—	—	2	16	20	29	—	1	10	21	11
Texas†	—	2	11	31	56	3	4	45	42	115	1	0	3	14	16
Mountain	—	2	8	29	73	—	2	7	29	58	1	1	4	18	25
Arizona	—	0	4	6	34	—	0	2	9	12	U	0	0	U	U
Colorado	—	0	2	8	19	—	0	5	3	15	—	0	3	2	8
Idaho†	—	0	2	4	4	—	0	1	2	4	—	0	2	6	6
Montana†	—	0	1	2	4	—	0	0	—	—	—	0	1	1	—
Nevada†	—	0	3	4	6	—	0	3	12	19	—	0	2	6	1
New Mexico†	—	0	1	3	3	—	0	2	2	2	—	0	1	2	7
Utah	—	0	2	—	3	—	0	1	1	6	—	0	2	—	3
Wyoming†	—	0	3	2	—	—	0	1	—	—	1	0	0	1	—
Pacific	1	6	15	113	103	3	5	25	55	123	—	1	12	34	28
Alaska	—	0	1	1	—	—	0	1	2	1	U	0	0	U	U
California	—	5	15	96	81	—	3	22	24	83	—	0	4	16	11
Hawaii	—	0	2	4	5	—	0	1	4	3	U	0	0	U	U
Oregon	—	0	2	4	8	—	1	3	15	21	—	0	3	8	8
Washington	1	0	2	8	9	3	1	4	10	15	—	0	5	10	9
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	5	8	10	—	1	8	28	18	—	0	7	10	19
Puerto Rico	—	0	2	2	9	—	0	3	2	11	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending June 4, 2011, and June 5, 2010 (22nd 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	26	57	128	713	936	147	316	1,828	3,598	7,626	8	29	114	396	524
New England	—	4	16	34	50	4	75	503	548	2,730	1	1	20	15	35
Connecticut	—	1	6	8	11	—	32	213	256	1,039	—	0	20	—	2
Maine†	—	0	3	3	3	—	9	62	65	152	1	0	1	2	3
Massachusetts	—	2	10	17	27	—	22	223	94	997	—	0	4	9	25
New Hampshire	—	0	5	2	3	—	14	69	85	466	—	0	2	2	1
Rhode Island†	—	0	4	1	5	—	1	40	4	24	—	0	4	—	3
Vermont†	—	0	2	3	1	4	4	28	44	52	—	0	1	2	1
Mid. Atlantic	8	15	53	157	222	128	136	662	2,021	2,587	—	9	22	91	170
New Jersey	—	1	18	1	36	3	38	234	533	1,201	—	1	6	8	37
New York (Upstate)	3	5	19	69	58	34	35	159	347	455	—	1	6	14	27
New York City	—	2	17	28	43	—	8	31	2	209	—	4	13	49	81
Pennsylvania	5	5	19	59	85	91	58	279	1,139	722	—	1	4	20	25
E.N. Central	2	10	44	132	171	1	21	373	255	807	1	3	9	47	47
Illinois	—	1	14	14	30	—	1	17	6	30	—	1	6	18	20
Indiana	—	1	6	25	14	—	0	8	6	28	—	0	2	4	6
Michigan	—	2	20	26	31	—	1	14	8	7	—	0	4	7	5
Ohio	2	4	15	67	75	—	0	9	6	6	1	1	5	17	13
Wisconsin	—	0	5	—	21	1	17	345	229	736	—	0	2	1	3
W.N. Central	3	2	9	18	36	—	10	188	4	391	—	1	45	3	23
Iowa	—	0	2	3	3	—	0	10	2	24	—	0	2	—	6
Kansas	—	0	2	2	4	—	0	1	1	5	—	0	2	2	3
Minnesota	—	0	8	—	10	—	7	181	—	359	—	0	45	—	3
Missouri	2	0	4	11	12	—	0	1	—	—	—	0	3	—	3
Nebraska†	—	0	2	—	2	—	0	2	1	3	—	0	1	1	6
North Dakota	1	0	1	1	2	—	0	10	—	—	—	0	1	—	—
South Dakota	—	0	2	1	3	—	0	1	—	—	—	0	1	—	2
S. Atlantic	5	9	27	143	186	12	54	178	683	993	6	7	41	132	143
Delaware	1	0	3	3	5	—	10	33	193	248	—	0	1	2	2
District of Columbia	—	0	4	4	12	—	1	5	8	10	—	0	2	5	5
Florida	2	3	9	61	61	2	1	8	19	21	1	2	7	34	47
Georgia	—	1	4	7	28	—	0	2	2	4	1	1	7	27	24
Maryland†	1	2	6	22	41	3	18	103	242	472	2	1	21	29	23
North Carolina	—	1	7	21	13	—	0	9	13	30	—	0	13	9	18
South Carolina†	1	0	2	5	4	—	0	3	3	14	—	0	1	—	3
Virginia†	—	1	9	16	17	6	17	82	188	180	2	1	5	26	21
West Virginia	—	0	3	4	5	1	0	29	15	14	—	0	1	—	—
E.S. Central	2	2	10	46	54	—	0	4	10	16	—	0	3	9	9
Alabama†	—	0	2	7	6	—	0	2	5	—	—	0	1	2	1
Kentucky	—	0	4	10	9	—	0	1	—	1	—	0	1	4	3
Mississippi	—	0	3	5	6	—	0	0	—	—	—	0	2	1	—
Tennessee†	2	1	5	24	33	—	0	4	5	15	—	0	2	2	5
W.S. Central	2	3	13	29	43	—	1	29	13	32	—	1	18	20	31
Arkansas†	1	0	2	3	7	—	0	0	—	—	—	0	1	1	1
Louisiana	—	0	3	6	1	—	0	1	—	—	—	0	1	—	1
Oklahoma	—	0	2	2	5	—	0	0	—	—	—	0	1	2	3
Texas†	1	2	11	18	30	—	1	29	13	32	—	1	17	17	26
Mountain	2	2	10	32	63	—	0	3	4	5	—	1	4	19	22
Arizona	—	1	7	11	19	—	0	1	3	—	—	0	3	8	8
Colorado	1	0	2	4	14	—	0	1	—	—	—	0	3	5	8
Idaho†	1	0	1	2	1	—	0	2	—	2	—	0	1	1	—
Montana†	—	0	1	—	2	—	0	1	—	—	—	0	1	—	1
Nevada†	—	0	2	8	12	—	0	1	—	—	—	0	2	3	2
New Mexico†	—	0	2	2	2	—	0	2	1	1	—	0	1	2	—
Utah	—	0	2	4	11	—	0	1	—	2	—	0	0	—	3
Wyoming†	—	0	2	1	2	—	0	0	—	—	—	0	0	—	—
Pacific	2	5	21	122	111	2	3	11	60	65	—	4	10	60	44
Alaska	—	0	2	—	—	—	0	1	—	2	—	0	2	3	2
California	2	4	15	109	100	2	2	9	42	43	—	2	10	44	29
Hawaii	—	0	1	1	1	N	0	0	N	N	—	0	1	2	1
Oregon	—	0	3	4	3	—	0	3	18	19	—	0	3	5	4
Washington	—	0	6	8	7	—	0	4	—	1	—	0	5	6	8
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	1	—	1	N	0	0	N	N	—	0	1	—	4
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.
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† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending June 4, 2011, and June 5, 2010 (22nd 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	3	15	53	354	395	3	11	217	143	1,793	61	547	2,925	5,366	5,762
New England	—	0	4	19	8	—	0	2	1	18	—	10	24	134	130
Connecticut	—	0	1	3	—	—	0	0	—	11	—	1	8	18	20
Maine§	—	0	1	3	2	—	0	1	—	1	—	1	8	49	7
Massachusetts	—	0	2	9	2	—	0	2	1	5	—	5	13	48	88
New Hampshire	—	0	1	1	—	—	0	2	—	1	—	0	3	15	5
Rhode Island§	—	0	1	—	—	—	0	0	—	—	—	0	7	3	7
Vermont§	—	0	3	3	4	—	0	0	—	—	—	0	4	1	3
Mid. Atlantic	1	1	5	36	39	1	4	209	18	1,567	17	39	125	509	309
New Jersey	—	0	1	—	11	—	1	11	8	278	—	3	10	40	57
New York (Upstate)	1	0	4	10	8	—	0	5	3	631	6	12	81	151	99
New York City	—	0	3	14	10	1	0	201	7	644	6	1	19	21	13
Pennsylvania	—	0	2	12	10	—	0	16	—	14	5	18	70	297	140
E.N. Central	—	2	7	43	69	1	1	7	37	34	14	113	198	1,279	1,394
Illinois	—	0	2	12	14	—	1	3	23	10	—	22	50	239	236
Indiana	—	0	2	6	15	—	0	1	—	2	—	11	26	79	209
Michigan	—	0	4	5	10	—	0	1	5	14	3	30	57	428	393
Ohio	—	1	2	15	17	1	0	5	9	7	11	33	80	398	471
Wisconsin	—	0	2	5	13	—	0	1	—	1	—	13	26	135	85
W.N. Central	—	1	4	25	28	—	0	7	18	67	2	36	501	381	446
Iowa	—	0	1	6	7	—	0	7	3	29	—	10	36	63	181
Kansas	—	0	2	2	2	—	0	1	3	3	—	2	9	31	64
Minnesota	—	0	2	—	2	—	0	4	1	3	—	0	469	109	5
Missouri	—	0	2	8	13	—	0	3	6	8	2	7	43	121	146
Nebraska§	—	0	2	6	4	—	0	1	1	23	—	4	13	35	33
North Dakota	—	0	1	1	—	—	0	3	4	—	—	0	30	20	—
South Dakota	—	0	1	2	—	—	0	1	—	1	—	0	2	2	17
S. Atlantic	1	2	8	63	75	1	0	4	10	33	8	37	106	547	565
Delaware	—	0	1	1	—	—	0	0	—	—	—	0	4	10	1
District of Columbia	—	0	1	—	—	—	0	1	—	2	—	0	2	2	3
Florida	1	1	5	26	37	—	0	2	2	6	3	6	15	118	119
Georgia	—	0	2	4	5	—	0	2	1	2	—	4	13	73	80
Maryland§	—	0	1	6	3	1	0	1	1	7	—	2	6	38	53
North Carolina	—	0	3	11	9	—	0	2	4	5	—	3	35	95	131
South Carolina§	—	0	1	4	6	—	0	1	—	3	3	6	25	55	107
Virginia§	—	0	2	9	13	—	0	2	2	6	2	7	41	111	63
West Virginia	—	0	1	2	2	—	0	0	—	2	—	1	41	45	8
E.S. Central	—	1	3	15	20	—	0	2	3	7	1	12	35	152	335
Alabama§	—	0	2	8	4	—	0	2	1	4	—	3	8	53	96
Kentucky	—	0	1	—	8	—	0	1	—	1	—	3	16	41	121
Mississippi	—	0	1	2	2	—	0	1	2	—	—	1	10	8	27
Tennessee§	—	0	2	5	6	—	0	1	—	2	1	3	11	50	91
W.S. Central	—	1	12	28	45	—	2	15	41	36	8	48	297	407	1,210
Arkansas§	—	0	1	6	5	—	0	1	1	1	—	3	18	26	61
Louisiana	—	0	2	5	11	—	0	2	—	3	—	1	3	10	18
Oklahoma	—	0	2	5	12	—	0	1	1	—	—	1	92	17	11
Texas§	—	1	10	12	17	—	1	14	39	32	8	41	187	354	1,120
Mountain	1	1	6	26	27	—	0	4	2	8	6	43	100	836	487
Arizona	—	0	2	8	7	—	0	1	—	3	—	14	29	335	184
Colorado	1	0	4	3	8	—	0	1	1	5	4	13	63	295	56
Idaho§	—	0	1	3	4	—	0	1	—	—	1	2	15	38	65
Montana§	—	0	2	3	1	—	0	0	—	—	—	2	16	54	13
Nevada§	—	0	1	3	4	—	0	1	—	—	1	0	7	14	7
New Mexico§	—	0	1	1	2	—	0	2	1	—	—	2	11	49	36
Utah	—	0	1	5	1	—	0	1	—	—	—	6	16	49	121
Wyoming§	—	0	1	—	—	—	0	1	—	—	—	0	2	2	5
Pacific	—	4	26	99	84	—	0	5	13	23	5	146	1,710	1,121	886
Alaska	—	0	1	1	1	—	0	1	1	1	—	0	6	15	12
California	—	2	17	70	52	—	0	4	7	14	1	128	1,569	879	674
Hawaii	—	0	1	3	1	—	0	1	2	1	1	1	6	15	23
Oregon	—	1	3	16	16	—	0	1	3	1	—	5	12	94	119
Washington	—	0	8	9	14	—	0	2	—	6	3	11	131	118	58
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	3	18	12	327	—	0	14	31	—
Puerto Rico	—	0	1	—	—	—	0	1	—	—	—	0	1	1	1
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
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† 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 June 4, 2011, and June 5, 2010 (22nd week)*

Reporting area	Rabies, animal					Salmonellosis					Shiga toxin-producing *E. coli* (STEC)†				
	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	47	56	167	789	1,782	388	973	1,812	11,466	13,849	46	101	264	1,287	1,310
New England	1	4	18	43	128	3	28	164	466	1,104	1	2	19	40	101
Connecticut	—	0	10	—	72	—	0	142	142	491	—	0	19	19	60
Maine§	—	1	3	21	25	3	3	8	47	37	1	0	3	5	3
Massachusetts	—	0	0	—	—	—	17	52	204	420	—	1	9	5	27
New Hampshire	—	0	6	5	4	—	3	12	48	66	—	0	3	9	9
Rhode Island§	—	0	4	2	8	—	2	17	10	71	—	0	1	—	—
Vermont§	1	1	3	15	19	—	1	5	15	19	—	0	2	2	2
Mid. Atlantic	4	13	33	113	463	29	87	217	1,250	1,704	2	10	30	135	133
New Jersey	—	0	0	—	—	—	18	57	98	336	—	2	9	28	32
New York (Upstate)	4	8	19	113	199	16	26	63	350	389	2	3	12	43	47
New York City	—	0	4	—	121	—	20	53	301	403	—	1	6	19	12
Pennsylvania	—	5	17	—	143	13	32	80	501	576	—	3	13	45	42
E.N. Central	2	2	27	34	49	21	82	265	1,205	1,901	2	11	48	153	222
Illinois	1	1	11	9	22	—	29	123	371	660	—	2	9	15	46
Indiana	—	0	1	1	—	—	11	61	124	211	—	2	10	29	29
Michigan	—	1	5	8	19	6	13	49	202	295	—	2	7	38	59
Ohio	1	0	12	16	8	15	23	46	357	474	2	2	11	48	39
Wisconsin	N	0	0	N	N	—	12	57	151	261	—	2	16	23	49
W.N. Central	—	2	40	29	96	28	48	121	669	838	7	13	49	136	222
Iowa	—	0	3	—	7	—	10	34	151	127	—	2	16	29	34
Kansas	—	1	4	13	25	2	7	19	100	121	—	1	5	19	20
Minnesota	—	0	34	—	14	—	6	30	—	248	—	3	20	—	57
Missouri	—	0	6	—	23	8	15	43	275	225	1	4	12	53	84
Nebraska§	—	1	3	12	24	3	4	13	65	62	2	1	6	24	18
North Dakota	—	0	6	4	3	15	0	13	15	6	4	0	10	4	—
South Dakota	—	0	0	—	—	—	3	17	63	49	—	0	4	7	9
S. Atlantic	40	19	37	456	522	172	276	624	3,394	3,242	8	17	31	329	189
Delaware	—	0	0	—	—	1	3	11	39	42	—	0	2	3	1
District of Columbia	—	0	0	—	—	—	1	7	13	41	—	0	2	1	5
Florida	—	0	29	46	121	89	109	226	1,399	1,482	6	6	15	158	65
Georgia	—	0	0	—	—	18	44	142	567	484	—	2	7	32	21
Maryland§	—	6	14	115	158	17	18	54	263	294	1	2	8	34	25
North Carolina	—	0	0	—	—	23	30	241	516	337	—	2	10	38	14
South Carolina§	N	0	0	N	N	10	29	99	275	243	—	0	4	9	7
Virginia§	25	12	27	274	210	14	21	68	289	242	1	3	9	52	46
West Virginia	15	0	7	21	33	—	0	14	33	77	—	0	4	2	5
E.S. Central	—	3	7	52	83	23	57	176	727	724	9	5	22	78	66
Alabama§	—	1	7	36	37	11	20	52	211	207	—	1	4	14	17
Kentucky	—	0	4	3	3	—	10	32	120	142	1	1	6	11	9
Mississippi	—	0	0	—	—	2	17	66	170	172	—	0	12	4	8
Tennessee§	—	1	4	13	43	10	18	53	226	203	8	2	7	49	32
W.S. Central	—	11	54	46	363	25	145	515	1,315	1,426	3	8	151	107	67
Arkansas§	—	0	10	34	11	8	13	43	172	112	—	0	4	8	13
Louisiana	—	0	0	—	—	—	19	52	141	336	—	0	2	3	7
Oklahoma	—	0	30	12	6	5	11	95	142	146	—	1	55	12	3
Texas§	—	9	30	—	346	12	95	381	860	832	3	6	95	84	44
Mountain	—	0	5	3	19	12	49	113	772	924	—	10	33	126	152
Arizona	N	0	0	N	N	2	16	43	263	287	—	1	14	29	23
Colorado	—	0	0	—	—	7	10	24	174	213	—	3	21	15	51
Idaho§	—	0	2	—	1	2	3	9	59	56	—	2	7	26	15
Montana§	N	0	0	N	N	—	1	6	31	37	—	1	3	8	17
Nevada§	—	0	2	—	—	1	5	21	65	77	—	0	6	14	10
New Mexico§	—	0	2	3	5	—	5	19	67	95	—	1	6	15	14
Utah	—	0	3	—	—	—	5	17	90	141	—	2	8	17	16
Wyoming§	—	0	4	—	13	—	1	8	23	18	—	0	3	2	6
Pacific	—	1	14	13	59	75	108	288	1,668	1,986	14	12	46	183	158
Alaska	—	0	2	9	11	—	1	4	27	32	—	0	1	—	1
California	—	0	12	—	41	60	75	232	1,258	1,352	12	8	36	137	70
Hawaii	—	0	0	—	—	2	6	13	107	120	—	0	3	2	15
Oregon	—	0	2	4	7	—	8	20	115	252	2	2	11	23	20
Washington	—	0	14	—	—	13	16	42	161	230	—	2	20	21	52
Territories															
American Samoa	N	0	0	N	N	—	0	1	—	1	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	3	6	1	—	0	0	—	—
Puerto Rico	—	0	6	16	22	—	9	25	31	218	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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† 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 June 4, 2011, and June 5, 2010 (22nd week)*

	Shigellosis					Spotted Fever Rickettsiosis (including RMSF)†									
						Confirmed					Probable				
	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	173	267	742	3,517	5,549	3	2	11	26	34	10	21	245	193	281
New England	—	3	17	63	159	—	0	0	—	—	—	0	1	1	1
Connecticut	—	0	14	14	69	—	0	0	—	—	—	0	0	—	—
Maine§	—	0	3	5	3	—	0	0	—	—	—	0	1	—	1
Massachusetts	—	2	16	42	75	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	2	—	4	—	0	0	—	—	—	0	1	—	—
Rhode Island§	—	0	4	—	7	—	0	0	—	—	—	0	1	1	—
Vermont§	—	0	1	2	1	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	3	16	74	209	748	1	0	1	3	2	—	1	7	7	26
New Jersey	—	4	16	34	158	—	0	0	—	1	—	0	5	—	17
New York (Upstate)	3	3	15	55	69	—	0	1	—	1	—	0	3	1	2
New York City	—	4	14	82	142	—	0	0	—	—	—	0	2	4	3
Pennsylvania	—	4	56	38	379	1	0	1	3	—	—	0	1	2	4
E.N. Central	8	18	37	219	861	—	0	1	—	—	1	1	7	16	22
Illinois	—	7	20	58	567	—	0	1	—	—	—	0	4	8	10
Indiana§	—	1	4	26	23	—	0	1	—	—	1	0	3	4	7
Michigan	—	4	10	48	98	—	0	0	—	—	—	0	1	1	—
Ohio	8	5	15	87	132	—	0	0	—	—	—	0	2	3	3
Wisconsin	—	0	4	—	41	—	0	0	—	—	—	0	1	—	2
W.N. Central	1	17	71	145	1,228	—	0	2	2	1	4	3	17	45	62
Iowa	—	1	4	7	23	—	0	0	—	—	—	0	1	1	2
Kansas§	1	4	12	26	115	—	0	0	—	—	—	0	0	—	—
Minnesota	—	0	4	—	18	—	0	0	—	—	—	0	2	—	—
Missouri	—	9	56	107	1,056	—	0	2	2	1	4	3	17	44	59
Nebraska§	—	0	10	3	12	—	0	2	—	—	—	0	1	—	1
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
South Dakota	—	0	2	2	4	—	0	0	—	—	—	0	0	—	—
S. Atlantic	99	61	122	1,355	779	2	1	7	15	23	1	6	59	47	78
Delaware§	—	0	2	—	31	—	0	0	—	1	—	0	3	5	6
District of Columbia	—	0	3	6	16	—	0	1	1	—	—	0	0	—	—
Florida§	83	32	81	969	275	—	0	1	2	1	—	0	2	1	5
Georgia	9	13	26	183	282	2	0	6	8	19	—	0	0	—	—
Maryland§	—	2	8	39	42	—	0	1	1	—	—	0	5	6	10
North Carolina	6	3	36	104	59	—	0	3	1	2	—	2	47	14	37
South Carolina§	—	1	5	18	30	—	0	1	2	—	—	0	2	4	3
Virginia§	1	2	8	32	43	—	0	2	—	—	1	2	12	17	17
West Virginia	—	0	66	4	1	—	0	0	—	—	—	0	0	—	—
E.S. Central	3	13	29	191	302	—	0	3	—	5	2	5	30	49	71
Alabama§	2	5	15	71	40	—	0	1	—	—	—	1	9	13	15
Kentucky	—	2	15	29	135	—	0	1	—	4	—	0	0	—	—
Mississippi	1	2	5	43	16	—	0	0	—	—	—	0	4	—	4
Tennessee§	—	3	14	48	111	—	0	2	—	1	2	4	20	36	52
W.S. Central	47	55	503	695	864	—	0	8	—	1	1	2	235	7	18
Arkansas§	1	2	7	24	19	—	0	2	—	—	—	0	28	1	5
Louisiana	—	5	13	49	105	—	0	0	—	—	—	0	1	—	1
Oklahoma	1	3	161	40	132	—	0	5	—	—	1	0	202	4	8
Texas§	45	45	338	582	608	—	0	1	—	1	—	0	5	2	4
Mountain	4	17	32	280	244	—	0	5	6	—	1	0	7	21	3
Arizona	1	7	19	76	129	—	0	4	6	—	—	0	7	19	—
Colorado§	2	2	8	35	34	—	0	1	—	—	1	0	1	1	—
Idaho§	—	0	3	7	7	—	0	0	—	—	—	0	1	—	1
Montana§	—	0	15	90	4	—	0	1	—	—	—	0	1	—	—
Nevada§	1	0	6	8	14	—	0	0	—	—	—	0	0	—	—
New Mexico§	—	3	10	46	44	—	0	0	—	—	—	0	0	—	1
Utah	—	1	4	17	12	—	0	0	—	—	—	0	1	—	1
Wyoming§	—	0	1	1	—	—	0	0	—	—	—	0	1	1	—
Pacific	8	23	63	360	364	—	0	2	—	2	—	0	1	—	—
Alaska	—	0	1	1	—	N	0	0	N	N	N	0	0	N	N
California	7	18	59	276	289	—	0	2	—	2	—	0	0	—	—
Hawaii	—	1	4	27	25	N	0	0	N	N	N	0	0	N	N
Oregon	—	1	4	26	25	—	0	0	—	—	—	0	1	—	—
Washington	1	1	22	30	25	—	0	1	—	—	—	0	0	—	—
Territories															
American Samoa	—	1	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	—	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 June 4, 2011, and June 5, 2010 (22nd week)*

Reporting area	*Streptococcus pneumoniae*,† invasive disease — All ages: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	*Streptococcus pneumoniae*,† invasive disease — Age <5: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010	Syphilis, primary and secondary: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2011	Cum 2010
United States	143	279	937	6,858	8,595	14	24	101	524	1,038	53	254	354	4,530	5,402
New England	8	11	79	200	448	1	1	5	22	63	1	8	19	145	188
Connecticut	—	0	49	7	211	—	0	3	6	20	—	1	8	18	37
Maine§	7	2	13	71	68	1	0	1	3	5	—	0	3	8	14
Massachusetts	—	0	3	14	49	—	0	3	6	34	1	5	14	93	116
New Hampshire	1	2	8	60	68	—	0	1	2	3	—	0	3	12	8
Rhode Island§	—	1	36	8	9	—	0	3	—	—	—	0	4	10	11
Vermont§	—	1	6	40	43	—	0	2	5	1	—	0	2	4	2
Mid. Atlantic	3	22	81	452	900	2	3	27	66	122	7	31	46	546	698
New Jersey	—	6	29	70	406	—	1	4	21	35	—	4	10	72	104
New York (Upstate)	3	2	10	46	94	2	1	9	26	71	3	2	20	70	39
New York City	—	14	42	336	400	—	0	14	19	16	1	15	31	262	394
Pennsylvania	N	0	0	N	N	N	0	0	N	N	3	7	16	142	161
E.N. Central	27	63	109	1,631	1,767	2	4	9	96	154	—	28	56	347	795
Illinois	N	0	0	N	N	N	0	0	N	N	—	12	23	52	394
Indiana	—	14	32	313	401	—	1	4	15	32	—	3	14	54	58
Michigan	5	13	29	362	391	—	1	4	21	49	—	4	10	76	120
Ohio	18	25	45	712	693	—	2	7	49	51	—	9	21	148	202
Wisconsin	4	9	24	244	282	2	0	3	11	22	—	1	3	17	21
W.N. Central	19	6	35	85	458	—	1	5	4	64	—	7	18	124	112
Iowa	N	0	0	N	N	N	0	0	N	N	—	0	3	8	7
Kansas	N	0	0	N	N	N	0	0	N	N	—	0	3	5	7
Minnesota	—	4	24	—	362	—	0	5	—	54	—	3	10	56	26
Missouri	N	0	0	N	N	N	0	0	N	N	—	2	9	53	67
Nebraska§	1	2	9	67	73	—	0	1	4	10	—	0	2	2	5
North Dakota	18	0	14	18	23	—	0	1	—	—	—	0	1	—	—
South Dakota	N	0	0	N	N	N	0	0	N	N	—	0	1	—	—
S. Atlantic	41	70	170	1,947	2,370	6	7	22	146	289	22	63	166	1,245	1,250
Delaware	—	1	6	29	21	—	0	1	—	—	1	0	4	6	3
District of Columbia	—	1	3	27	48	—	0	1	4	7	—	3	8	71	56
Florida	20	23	68	800	897	4	3	13	73	114	—	22	44	447	436
Georgia	15	18	54	399	776	2	2	7	34	90	1	10	118	190	271
Maryland§	5	9	32	294	273	—	1	4	14	32	5	8	17	190	101
North Carolina	N	0	0	N	N	N	0	0	N	N	11	7	19	158	209
South Carolina§	1	8	25	273	297	—	1	3	16	34	2	3	10	87	56
Virginia§	N	0	0	N	N	N	0	0	N	N	2	5	16	96	115
West Virginia	—	1	48	125	58	—	0	6	5	12	—	0	2	—	3
E.S. Central	8	18	36	504	592	1	1	4	29	58	—	14	34	240	371
Alabama§	N	0	0	N	N	N	0	0	N	N	—	3	11	46	113
Kentucky	N	0	0	N	N	N	0	0	N	N	—	2	16	44	49
Mississippi	N	0	0	N	N	N	0	0	N	N	—	3	16	50	84
Tennessee§	8	18	36	504	592	1	1	4	29	58	—	5	11	100	125
W.S. Central	17	32	368	1,011	960	1	4	30	90	121	19	36	71	680	819
Arkansas§	3	3	26	128	97	1	0	3	11	11	2	3	10	73	108
Louisiana	—	3	11	97	58	—	0	2	8	16	—	7	36	123	172
Oklahoma	N	0	0	N	N	N	0	0	N	N	—	1	6	22	41
Texas§	14	26	333	786	805	—	3	27	71	94	17	23	33	462	498
Mountain	20	31	72	947	1,033	1	3	8	65	151	1	12	24	215	213
Arizona	8	11	43	472	512	1	1	5	31	69	—	4	9	72	85
Colorado	12	9	23	256	295	—	1	3	15	44	—	2	8	47	50
Idaho§	N	0	0	N	N	N	0	0	N	N	—	0	2	3	2
Montana§	N	0	0	N	N	N	0	0	N	N	—	0	2	1	—
Nevada§	N	0	0	N	N	N	0	0	N	N	1	2	9	59	35
New Mexico§	—	3	13	139	93	—	0	2	9	13	—	1	4	28	10
Utah	—	3	8	63	123	—	0	3	10	23	—	0	5	5	31
Wyoming§	—	0	15	17	10	—	0	1	—	2	—	0	0	—	—
Pacific	—	2	11	81	67	—	0	2	6	16	3	51	66	988	956
Alaska	—	2	11	80	67	—	0	2	6	16	—	0	0	—	3
California	N	0	0	N	N	N	0	0	N	N	3	41	57	812	820
Hawaii	—	0	3	1	—	—	0	0	—	—	—	0	5	6	18
Oregon	N	0	0	N	N	N	0	0	N	N	—	1	7	37	26
Washington	N	0	0	N	N	N	0	0	N	N	—	6	13	133	89
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—	5	4	15	91	89
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 June 4, 2011, and June 5, 2010 (22nd week)[*]

Reporting area	Varicella (chickenpox)					West Nile virus disease[†] Neuroinvasive					West Nile virus disease[†] Nonneuroinvasive[§]				
	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	148	239	370	5,009	8,231	—	1	71	—	1	—	0	53	1	9
New England	3	19	46	358	524	—	0	3	—	—	—	0	2	—	—
Connecticut	1	5	15	104	152	—	0	2	—	—	—	0	2	—	—
Maine[¶]	—	4	16	88	101	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	4	17	103	139	—	0	2	—	—	—	0	1	—	—
New Hampshire	—	2	9	9	65	—	0	1	—	—	—	0	0	—	—
Rhode Island[¶]	—	0	4	6	14	—	0	0	—	—	—	0	0	—	—
Vermont[¶]	2	2	10	48	53	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	24	29	55	597	873	—	0	19	—	—	—	0	13	—	—
New Jersey	—	8	19	148	326	—	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	24	18	41	449	546	—	0	3	—	—	—	0	3	—	—
E.N. Central	31	69	118	1,521	2,845	—	0	15	—	—	—	0	7	—	—
Illinois	2	18	31	392	717	—	0	10	—	—	—	0	4	—	—
Indiana[¶]	—	5	18	109	200	—	0	2	—	—	—	0	2	—	—
Michigan	10	20	38	479	879	—	0	6	—	—	—	0	1	—	—
Ohio	19	21	58	540	761	—	0	1	—	—	—	0	1	—	—
Wisconsin	—	4	22	1	288	—	0	0	—	—	—	0	1	—	—
W.N. Central	—	9	35	174	430	—	0	7	—	—	—	0	11	—	4
Iowa	N	0	0	N	N	—	0	1	—	—	—	0	2	—	—
Kansas[¶]	—	2	8	53	186	—	0	1	—	—	—	0	3	—	2
Minnesota	—	0	0	—	—	—	0	1	—	—	—	0	3	—	—
Missouri	—	6	24	90	199	—	0	1	—	—	—	0	0	—	—
Nebraska[¶]	—	0	5	1	2	—	0	3	—	—	—	0	7	—	2
North Dakota	—	0	10	16	29	—	0	2	—	—	—	0	2	—	—
South Dakota	—	1	7	14	14	—	0	2	—	—	—	0	3	—	—
S. Atlantic	32	31	63	694	1,167	—	0	6	—	—	—	0	4	—	3
Delaware[¶]	—	0	3	4	17	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	3	8	12	—	0	1	—	—	—	0	1	—	—
Florida[¶]	17	15	38	477	598	—	0	3	—	—	—	0	1	—	—
Georgia	N	0	0	N	N	—	0	1	—	—	—	0	3	—	3
Maryland[¶]	N	0	0	N	N	—	0	3	—	—	—	0	2	—	—
North Carolina	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
South Carolina[¶]	—	0	6	—	74	—	0	1	—	—	—	0	0	—	—
Virginia[¶]	15	9	29	205	229	—	0	1	—	—	—	0	1	—	—
West Virginia	—	4	18	—	237	—	0	0	—	—	—	0	0	—	—
E.S. Central	—	6	15	149	163	—	0	1	—	1	—	0	3	1	1
Alabama[¶]	—	5	14	141	159	—	0	1	—	—	—	0	1	—	1
Kentucky	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Mississippi	—	0	3	8	4	—	0	1	—	1	—	0	2	1	—
Tennessee[¶]	N	0	0	N	N	—	0	1	—	—	—	0	2	—	—
W.S. Central	54	42	258	1,080	1,569	—	0	16	—	—	—	0	3	—	—
Arkansas[¶]	1	3	17	97	112	—	0	3	—	—	—	0	1	—	—
Louisiana	—	1	5	18	37	—	0	3	—	—	—	0	1	—	—
Oklahoma	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Texas[¶]	53	37	247	965	1,420	—	0	15	—	—	—	0	2	—	—
Mountain	3	15	50	353	612	—	0	18	—	—	—	0	15	—	1
Arizona	—	0	0	—	—	—	0	13	—	—	—	0	9	—	1
Colorado[¶]	3	6	31	132	218	—	0	5	—	—	—	0	11	—	—
Idaho[¶]	N	0	0	N	N	—	0	0	—	—	—	0	1	—	—
Montana[¶]	—	2	28	89	112	—	0	0	—	—	—	0	0	—	—
Nevada[¶]	N	0	0	N	N	—	0	0	—	—	—	0	1	—	—
New Mexico[¶]	—	1	8	18	58	—	0	6	—	—	—	0	2	—	—
Utah	—	4	26	107	211	—	0	1	—	—	—	0	1	—	—
Wyoming[¶]	—	0	3	7	13	—	0	1	—	—	—	0	1	—	—
Pacific	1	3	22	83	48	—	0	8	—	—	—	0	6	—	—
Alaska	—	1	5	26	18	—	0	0	—	—	—	0	0	—	—
California	—	0	19	36	14	—	0	8	—	—	—	0	6	—	—
Hawaii	1	1	4	21	16	—	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	4	16	8	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	8	31	52	216	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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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 June 4, 2011 (22nd week)

Reporting area	All causes, by age (years)						P&I†
	All Ages	≥65	45–64	25–44	1–24	<1	Total
New England	496	348	111	19	5	13	44
Boston, MA	110	63	31	12	2	2	9
Bridgeport, CT	22	14	5	—	2	1	1
Cambridge, MA	11	7	4	—	—	—	1
Fall River, MA	18	16	1	1	—	—	1
Hartford, CT	63	42	15	2	—	4	4
Lowell, MA	15	10	4	1	—	—	1
Lynn, MA	7	5	2	—	—	—	—
New Bedford, MA	23	18	4	1	—	—	1
New Haven, CT	40	28	9	2	1	—	6
Providence, RI	62	50	10	—	—	2	2
Somerville, MA	2	1	1	—	—	—	1
Springfield, MA	40	26	12	—	—	2	2
Waterbury, CT	19	16	3	—	—	—	3
Worcester, MA	64	52	10	—	—	2	12
Mid. Atlantic	1,554	1,075	352	81	25	21	90
Albany, NY	41	25	11	3	1	1	3
Allentown, PA	26	19	4	2	1	—	2
Buffalo, NY	79	52	21	4	1	1	8
Camden, NJ	23	10	6	6	—	1	1
Elizabeth, NJ	13	11	2	—	—	—	2
Erie, PA	36	22	11	2	—	1	3
Jersey City, NJ	22	16	5	1	—	—	2
New York City, NY	833	599	181	29	12	12	39
Newark, NJ	43	22	12	7	2	—	1
Paterson, NJ	14	9	3	2	—	—	—
Philadelphia, PA	144	76	46	15	4	3	7
Pittsburgh, PA§	24	16	6	1	—	1	—
Reading, PA	35	28	5	2	—	—	3
Rochester, NY	73	55	11	2	4	1	6
Schenectady, NY	21	16	5	—	—	—	2
Scranton, PA	18	15	2	1	—	—	—
Syracuse, NY	65	52	10	3	—	—	9
Trenton, NJ	20	12	7	1	—	—	—
Utica, NY	16	12	4	—	—	—	1
Yonkers, NY	8	8	—	—	—	—	1
E.N. Central	1,801	1,211	417	108	40	25	119
Akron, OH	43	34	9	—	—	—	7
Canton, OH	31	21	8	2	—	—	4
Chicago, IL	202	130	48	14	10	—	19
Cincinnati, OH	84	53	24	3	2	2	9
Cleveland, OH	225	170	45	5	2	3	13
Columbus, OH	162	115	26	12	5	4	15
Dayton, OH	105	77	18	8	1	1	4
Detroit, MI	139	73	41	16	6	3	5
Evansville, IN	43	33	7	2	—	1	4
Fort Wayne, IN	38	24	12	—	1	1	2
Gary, IN	10	1	7	—	2	—	—
Grand Rapids, MI	51	37	11	1	—	2	4
Indianapolis, IN	314	197	81	22	9	5	12
Lansing, MI	39	29	7	2	—	1	2
Milwaukee, WI	69	39	18	11	—	1	2
Peoria, IL	35	22	10	2	—	1	2
Rockford, IL	55	38	11	4	2	—	2
South Bend, IN	50	35	14	1	—	—	7
Toledo, OH	56	40	14	2	—	—	3
Youngstown, OH	50	43	6	1	—	—	3
W.N. Central	495	317	127	25	11	15	34
Des Moines, IA	37	31	5	—	—	1	2
Duluth, MN	28	22	5	—	—	1	2
Kansas City, KS	22	12	5	5	—	—	2
Kansas City, MO	76	44	19	6	4	3	3
Lincoln, NE	55	37	16	1	1	—	2
Minneapolis, MN	53	31	12	4	2	4	6
Omaha, NE	72	47	20	2	—	3	7
St. Louis, MO	30	16	11	2	—	1	2
St. Paul, MN	43	26	12	3	1	1	4
Wichita, KS	79	51	22	2	3	1	4
Reporting area (*Continued*)							
S. Atlantic	1,017	633	257	73	34	20	69
Atlanta, GA	116	70	29	10	7	—	3
Baltimore, MD	119	60	41	11	5	2	10
Charlotte, NC	124	78	31	11	1	3	9
Jacksonville, FL	133	86	31	9	6	1	7
Miami, FL	89	65	15	6	1	2	6
Norfolk, VA	43	24	13	1	3	2	2
Richmond, VA	59	31	20	5	2	1	5
Savannah, GA	36	28	6	1	1	—	4
St. Petersburg, FL	61	34	17	4	4	2	6
Tampa, FL	164	121	27	8	2	6	11
Washington, D.C.	67	33	25	6	2	1	6
Wilmington, DE	6	3	2	1	—	—	—
E.S. Central	699	444	178	52	16	9	51
Birmingham, AL	136	83	35	10	5	3	11
Chattanooga, TN	69	49	17	2	1	—	4
Knoxville, TN	107	76	21	6	2	2	8
Lexington, KY	48	31	13	2	1	1	5
Memphis, TN	133	81	33	13	5	1	12
Mobile, AL	54	37	10	6	1	—	3
Montgomery, AL	29	19	6	3	—	1	—
Nashville, TN	123	68	43	10	1	1	8
W.S. Central	1,097	703	267	75	31	20	70
Austin, TX	77	56	15	2	2	2	7
Baton Rouge, LA	66	49	9	6	2	—	—
Corpus Christi, TX	66	51	11	3	1	—	2
Dallas, TX	203	104	68	16	8	7	10
El Paso, TX	87	60	16	7	4	—	10
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	181	110	46	10	9	6	15
Little Rock, AR	57	28	19	10	—	—	—
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	203	133	51	13	3	2	18
Shreveport, LA	53	37	10	5	—	1	2
Tulsa, OK	104	75	22	3	2	2	6
Mountain	897	603	214	51	18	11	56
Albuquerque, NM	124	79	33	6	5	1	5
Boise, ID	50	33	14	2	1	—	2
Colorado Springs, CO	65	48	11	5	—	1	3
Denver, CO	92	56	22	9	2	3	5
Las Vegas, NV	242	158	70	10	2	2	11
Ogden, UT	34	23	9	—	1	1	6
Phoenix, AZ	U	U	U	U	U	U	U
Pueblo, CO	30	18	9	3	—	—	1
Salt Lake City, UT	126	95	20	7	3	1	16
Tucson, AZ	134	93	26	9	4	2	7
Pacific	1,482	1,032	313	89	29	18	141
Berkeley, CA	11	7	3	1	—	—	1
Fresno, CA	131	91	24	8	4	4	18
Glendale, CA	32	28	4	—	—	—	2
Honolulu, HI	61	42	12	4	2	1	4
Long Beach, CA	43	26	13	1	3	—	3
Los Angeles, CA	213	147	45	16	3	2	26
Pasadena, CA	16	10	2	1	3	—	2
Portland, OR	105	77	19	7	1	1	7
Sacramento, CA	162	114	33	10	3	2	15
San Diego, CA	137	91	34	8	2	2	11
San Francisco, CA	86	60	22	4	—	—	15
San Jose, CA	197	141	39	10	3	4	14
Santa Cruz, CA	28	18	7	1	—	1	3
Seattle, WA	115	77	29	6	3	—	8
Spokane, WA	53	39	4	9	—	1	10
Tacoma, WA	92	64	23	3	2	—	2
Total¶	**9,538**	**6,366**	**2,236**	**573**	**209**	**152**	**674**

U: Unavailable. —: No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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