CDC

MMWR

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Weekly April 10, 2009 / Vol. 58 / No. 13

HIV-Associated Behaviors Among Injecting-Drug Users — 23 Cities, United States, May 2005–February 2006

Since the late 1980s, incidence of human immunodeficiency virus infection (HIV) has declined 80% among injecting-drug users (IDUs) in the United States; in 2006, an estimated 6,600 (12%) of new HIV infections occurred among IDUs (*1*). To assess HIV-associated behaviors among IDUs at risk for HIV infection, CDC analyzed data from the National HIV Behavioral Surveillance System (NHBS) collected during May 2005–February 2006 (the most recent data available). The results of that analysis indicated that, during that period, 31.8% of participating IDUs reported sharing syringes, and 62.6% had unprotected vaginal sex; 71.5% had been tested for HIV, and 27.4% had participated in an HIV behavioral intervention. These data can help guide local, state, and national prevention services tailored to IDUs at risk for HIV infection and other bloodborne or sexually transmitted infections.

NHBS is an ongoing behavioral surveillance system, established by CDC in 2003 in cities where approximately 60% of all cases of acquired immunodeficiency syndrome (AIDS) had been reported. NHBS assesses trends in HIV risk behaviors, testing, and HIV prevention services among three groups: IDUs, men who have sex with men (MSM), and heterosexuals. NHBS data are collected in rotating cycles, approximately once every 3 years from each of the three groups; however, the groups are not mutually exclusive (e.g., MSM who inject drugs might be participants in both the MSM and IDU cycles).

For this report, interviews were conducted with IDUs in 23 metropolitan statistical areas,* using respondent-driven sampling, a peer-referral sampling method (*2*). Recruitment chains began in each city with fewer than 20 initial participants who either were referred from programs serving the local IDU community or were recruited by NHBS staff members through outreach. Initial participants who completed the interview were asked to recruit three other IDUs through the use of a coded coupon system to track the referrals. Recruitment continued for multiple waves of peer referrals; all participation was voluntary. Participants were paid $25 for their interview time; those who recruited others were paid an additional $10 for each eligible IDU they recruited to participate. Persons were eligible to participate if they had injected drugs during the preceding 12 months,[†] resided in the metropolitan statistical area where they were interviewed, were aged ≥18 years, and were able to give informed consent. Trained interviewers administered a standardized questionnaire in person, using a handheld computer; the survey took approximately 45 minutes to complete.

* Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Fort Lauderdale, Florida; Houston, Texas; Las Vegas, Nevada; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Haven, Connecticut; New York, New York; Newark, New Jersey; Norfolk, Virginia; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; St. Louis, Missouri; and Seattle, Washington.

† Interviewees were asked, "Have you ever in your life shot up or injected any drugs other than those prescribed for you? By shooting up, I mean any time you might have used drugs with a needle, either by mainlining, skin popping, or muscling." Those who said "yes" were then asked, "When was the last time you injected any drug? That is, how many days or months or years ago did you last inject?" Those who had injected during the 12 months preceding the date of the interview were eligible to participate.

INSIDE

Department of Health and Human Services
Centers for Disease Control and Prevention

For this report, data on eight selected HIV-associated behaviors were analyzed. Participants were asked whether, during the preceding 12 months, they 1) shared syringes; 2) shared injection equipment; 3) had vaginal sex[§]; 4) had unprotected vaginal sex; 5) had more than one opposite-sex partner; 6) were tested for HIV infection; and 7) participated in an individual or group HIV behavioral intervention; participants also were asked whether they 8) had ever been tested for hepatitis C virus (HCV) infection.[¶] Data from each metropolitan statistical area were analyzed using a respondent-driven sampling analysis program that produces estimates adjusted for differences in peer recruitment patterns and size of participant IDU peer networks (*3*). Results from these analyses were aggregated and weighted by the size of the IDU population in each metropolitan statistical area (*4*) to obtain an overall estimated prevalence for each behavior.

During May 2005–February 2006, a total of 13,519 persons were recruited to participate; of these, 1,563 (11.6%) were found ineligible, and 46 had missing recruitment information. Among the remaining 11,910 participants, data for 1,609 were excluded: 881 who already knew they had HIV infection, 334 whose data were lost during electronic upload, 288 initial participants (whose responses were excluded as part of the respondent-driven sampling methodology), 68 who could not be identified as either male or female, and 38 who gave responses with questionable validity. Data for the remaining 10,301 participants were used for this report. Overall, by demographic characteristic, the highest percentages of participants were men (66.7%), non-Hispanic blacks (47.1%), and persons aged 45–54 years (38.0%).

Among the participating IDUs, 31.8% reported sharing syringes, and 33.4% reported sharing injection equipment during the preceding 12 months (Table). Syringes were shared most commonly among non-Hispanic white IDUs (40.2%) and persons aged 25–34 years (38.6%).

Overall, 81.7% of the IDUs reporting having vaginal sex, and 62.6% reported having unprotected vaginal sex; 47.2% had more than one opposite-sex partner during the preceding 12 months. The prevalence of having unprotected vaginal sex was highest among those aged 18–24 years (67.4%). The prevalence of having more than one opposite-sex partner was highest among those aged 25–34 years (57.6%) (Table).

§ For this report, data on anal sex were not analyzed.

¶ Sharing syringes was defined as "using needles that might have already been used by someone else," and sharing injection equipment was defined as using equipment such as cookers, cottons, or water used to rinse needles or prepare drugs "that someone else used." Unprotected vaginal sex was defined as "sex without a condom." Participating in an individual or group HIV behavioral intervention did not include counseling received as part of an HIV test. Testing for HCV infection was measured as ever tested or ever received a diagnosis of hepatitis C.

TABLE. Estimated percentage* of injecting-drug users (IDUs) engaging in selected behaviors associated with human immunodeficiency virus (HIV) infection† during the preceding 12 months, by sex, race/ethnicity, and age group — National HIV Behavioral Surveillance System, 23 cities,§ United States, May 2005–February 2006

Characteristic	Shared syringes % (SE¶)	Shared injection equipment % (SE)	Had vaginal sex % (SE)	Had unprotected vaginal sex % (SE)	Had more than one opposite-sex partner % (SE)	Tested for HIV infection % (SE)	Participated in HIV behavioral intervention % (SE)	Tested for hepatitis C % (SE)
Overall	**31.8 (4.9)**	**33.4 (4.9)**	**81.7 (4.8)**	**62.6 (5.2)**	**47.2 (5.1)**	**71.5 (5.0)**	**27.4 (4.9)**	**72.2 (5.0)**
Sex								
Men	32.1 (5.3)	36.4 (5.7)	82.7 (5.0)	62.8 (5.6)	50.8 (5.6)	69.8 (5.4)	26.3 (5.1)	73.8 (5.4)
Women	31.6 (6.6)	30.5 (6.4)	79.7 (6.5)	62.3 (6.9)	40.1 (6.7)	74.5 (6.4)	29.8 (6.6)	67.8 (7.4)
Race/Ethnicity								
White, non-Hispanic	40.2 (6.6)	37.0 (6.6)	80.6 (6.0)	63.9 (6.6)	48.4 (6.7)	68.6 (6.7)	21.7 (5.9)	75.2 (6.3)
Black, non-Hispanic	29.1 (5.4)	33.1 (5.5)	84.6 (4.9)	64.0 (5.6)	50.9 (5.7)	71.4 (5.4)	27.9 (5.3)	68.6 (5.5)
Hispanic	28.9 (10.0)	29.7 (9.7)	75.3 (10.5)	58.4 (10.9)	38.8 (10.7)	73.6 (10.1)	31.6 (9.9)	75.4 (10.1)
Other**	34.8 (11.7)	39.7 (12.1)	83.0 (10.3)	59.5 (12.1)	46.0 (12.1)	69.9 (12.0)	29.5 (11.3)	75.8 (10.9)
Age group (yrs)								
18–24	34.5 (9.7)	29.7 (8.0)	88.1 (8.3)	67.4 (10.5)	55.7 (10.6)	83.0 (8.5)	24.5 (9.3)	63.0 (10.5)
25–34	38.6 (7.5)	33.8 (7.3)	86.8 (6.6)	64.7 (7.8)	57.6 (7.6)	75.7 (6.7)	25.4 (7.1)	66.5 (7.4)
35–44	31.8 (6.5)	33.8 (6.6)	85.0 (6.3)	66.9 (6.9)	48.4 (6.9)	71.9 (6.8)	29.6 (6.8)	67.1 (7.0)
45–54	32.5 (6.2)	35.2 (6.5)	80.4 (6.1)	62.2 (6.6)	44.6 (6.6)	68.5 (6.5)	28.3 (6.2)	76.9 (6.1)
≥55	22.4 (7.9)	29.0 (8.9)	70.5 (9.4)	49.2 (9.1)	36.5 (8.9)	70.0 (9.4)	22.9 (8.0)	79.4 (7.9)

* Percentages were weighted to adjust for differences in recruitment, the size of participant IDU peer networks, and the size of the IDU population in each city.
† Atlanta, Georgia; Baltimore, Maryland; Boston, Massachusetts; Chicago, Illinois; Dallas, Texas; Denver, Colorado; Detroit, Michigan; Fort Lauderdale, Florida; Houston, Texas; Las Vegas, Nevada; Los Angeles, California; Miami, Florida; Nassau-Suffolk, New York; New Haven, Connecticut; New York, New York; Newark, New Jersey; Norfolk, Virginia; Philadelphia, Pennsylvania; San Diego, California; San Francisco, California; San Juan, Puerto Rico; St. Louis, Missouri; and Seattle, Washington.
§ Sharing syringes was defined as "using needles that might have already been used by someone else," and sharing injection equipment was defined as using equipment such as cookers, cottons, or water used to rinse needles or prepare drugs "that someone else used." Unprotected vaginal sex was defined as "sex without a condom." Persons tested for HIV infection include those with results that were negative, indeterminate, or unknown. Participating in an individual or group HIV behavioral intervention did not include counseling received as part of an HIV test. Testing for hepatitis C virus infection was measured as ever tested or ever received a diagnosis of hepatitis C.
¶ Standard error.
** Includes American Indian/Alaska Natives, Asians, Native Hawaiian or other Pacific Islanders, persons of multiple race, and those for whom race/ethnicity information was missing.

During the 12 months preceding their interviews, 71.5% of participants had been tested for HIV infection; the prevalence of testing was lowest among men (69.8%), non-Hispanic whites (68.6%), and persons aged 45–54 years (68.5%). Among the IDUs, 27.4% reported participating in an individual or group HIV behavioral intervention; such participation was least common among non-Hispanic whites (21.7%). HCV testing or diagnosis had been received by 72.2% of participants at some time in their lives; HCV testing was least common among those aged 18–24 years (63.0%) (Table).

Reported by: *A Lansky, PhD, A Drake, MPH, HT Pham, MPH, Div of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC.*

Editorial Note: NHBS provides the first national estimates of certain HIV-associated behaviors among IDUs in 23 cities with high AIDS prevalence. The finding that approximately one third of participants reported sharing syringes or injection equipment (31.8% and 33.4%, respectively) underscores the need to continue to focus HIV prevention strategies on these behaviors despite declines in HIV incidence among IDUs (*1*). These data are consistent with data on sharing syringes reported in 2007 from a multi-city study (*5*). However, the NHBS data also indicate that approximately half of participants had unprotected vaginal sex (62.6%) or multiple opposite-sex partners (47.2%), suggesting that a substantial proportion of IDUs are at risk for acquiring HIV infection through their sexual behavior in addition to their drug use practices.

Behavioral interventions have been shown to reduce risk behaviors among IDUs (*6*). However, only 27.4% of NHBS participants had participated in individual or group HIV behavioral interventions during the preceding 12 months. Among racial/ethnic populations, HIV testing and participation in behavioral interventions were more common among non-Hispanic blacks and Hispanics, persons for whom HIV incidence rates are disproportionately high (*1*) and for whom interventions are most needed. Although IDUs aged 18–24 years had the highest prevalence of receiving HIV testing, they had the lowest prevalence of ever being tested for HCV. National recommendations for prevention and control of HCV infection call for risk-reduction counseling and screening of persons at risk for HCV infection, including IDUs (*7*). To increase the percentage of HIV-positive persons who know they have HIV infection, IDUs should have an HIV test at least annually (*8*).

The findings in this report are subject to at least three limitations. First, because no standard exists for obtaining probability samples of IDUs, the representativeness of the NHBS sample cannot be determined; although respondent-driven sampling adjusts for some biases, other factors (e.g., not every IDU network was sampled in each city) might have affected the representativeness of the sample. Second, findings from the 23 cities in this study might not be generalizable to all other cities or states in the United States. Finally, because the questionnaire was administered in person by an interviewer, some participants might not have accurately reported their behavior because of social desirability bias.

The NHBS data in this report underscore the need to continue current public health strategies (e.g., ready IDU access to HIV testing, sterile syringes, and condoms) and expand the reach of effective behavioral interventions that focus on the HIV risks of sharing syringes and other injection equipment and engaging in high-risk sexual behavior. Because IDUs are at high risk for numerous bloodborne and sexually transmitted infections, they are prime candidates for integrated health services (*9*) that provide disease prevention counseling and relevant screening (or vaccination) for hepatitis, sexually transmitted diseases, tuberculosis, or HIV, whenever they seek health care. Certain state and local syringe exchange programs already have expanded their scopes to include these types of integrated services (*10*). Providing comprehensive services to IDUs can help reduce the spread of bloodborne infections and increase access to health care, providing an effective approach to the spread of disease for the entire population (*6*).

Acknowledgments

This report is based, in part, on contributions by local NHBS staff members, including the following principal investigators: L Shouse, Georgia Div of Human Resources; C Flynn, Maryland Dept of Health and Mental Hygiene; E Rubinstein, Massachusetts Dept of Public Health; C Ciesielski, Chicago Dept of Public Health; S Melville, Texas Dept of State Health Svcs; B Dillon, Colorado Dept of Health and Environment; A Roome, Connecticut Dept of Health; E Mokotoff, Michigan Dept of Community Health; M Wolverton, Houston Dept of Health, Texas; D Crockett, Nevada Dept of Public Health; T Bingham, Los Angeles County Dept of Public Health, California; M LaLota, Florida Dept of Health; C Nemeth, New York Dept of Health; C Murrill, New York City Dept of Health and Mental Hygiene, New York; H Cross, New Jersey Dept of Health and Senior Svcs; D Bensen, Virginia Dept of Public Health; K Brady, Philadelphia Dept of Health, Pennsylvania; A Ritieni, California Dept of Health; HF Raymond, San Francisco Dept of Public Health; SM De Leon, Puerto Rico Dept of Health; Y Friedberg, Missouri Dept of Health; and M Courogen, Washington Dept of Health. DD Heckathorn, Cornell Univ, Ithaca, New York.

References

1. Hall HI, Song R, Rhodes P, et al. Estimation of HIV incidence in the United States. JAMA 2008;300:520–9.
2. Lansky A, Abdul-Quader AS, Cribbin M, et al. Development of an HIV behavioral surveillance system for injecting drug users: the National HIV Behavioral Surveillance System. Public Health Rep 2007;122(Suppl 1):48–55.
3. Salganik MJ, Heckathorn, DD. Sampling and estimation in hidden populations using respondent-driven sampling. Sociological Methodology 2004;34:193–239.
4. Brady JE, Friedman SR, Cooper HL, Flom PL, Tempalski B, Gostnell K. Estimating the prevalence of injection drug users in the U.S. and in large U.S. metropolitan areas from 1992 to 2002. J Urban Health 2008;85:323–51.
5. Des Jarlais DC, Braine N, Yi H, Turner C. Residual injection risk behavior, HIV infection, and the evaluation of syringe exchange programs. AIDS Educ Prev 2007;19:111–23.
6. Des Jarlais DC, Semaan S. HIV prevention for injecting drug users: the first 25 years and counting. Psychosom Med 2008;70:606–11.
7. CDC. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. MMWR 1998;47(No. RR-19).
8. CDC. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR 2006;55(No. RR-14).
9. Ward JW, Fenton KA. CDC and progress toward integration of HIV, STD, and viral hepatitis prevention. Public Health Rep 2007;122 (Suppl 2):99–101.
10. CDC. Syringe exchange programs—United States, 2005. MMWR 2007;56:1164–7.

Preliminary FoodNet Data on the Incidence of Infection with Pathogens Transmitted Commonly Through Food — 10 States, 2008

Foodborne diseases remain an important public health problem in the United States. The Foodborne Diseases Active Surveillance Network (FoodNet) of CDC's Emerging Infections Program collects data from 10 U.S. states* on diseases caused by enteric pathogens transmitted commonly through food. FoodNet is an active, population-based surveillance system for these laboratory-confirmed infections (*1*). This report describes preliminary surveillance data for 2008 and trends since 1996. In 2008, the estimated incidence of infections caused by *Campylobacter, Cryptosporidium, Cyclospora, Listeria*, Shiga toxin-producing *Escherichia coli* (STEC) O157, *Salmonella, Shigella, Vibrio,* and *Yersinia* did not change significantly when compared with the preceding 3 years. For most infections, incidence was highest among children aged <4 years, whereas the percentage of persons hospitalized and the case fatality rate were highest among persons aged ≥50 years. None of the *Healthy People 2010* targets for reduction of foodborne pathogens (objective 10-1) (*2*) were reached in 2008. The lack of recent progress points to gaps in the current food safety system and the need to continue to develop and evaluate food safety practices as food moves from the farm to the table.

Surveillance Methods

FoodNet has conducted active, population-based surveillance for laboratory-confirmed cases of infection caused by *Campylobacter*, *Listeria*, *Salmonella*, STEC O157, *Shigella*, *Vibrio*, and *Yersinia* since 1996, *Cryptosporidium* and *Cyclospora* since 1997, and STEC non-O157 since 2000 in 10 participating states. FoodNet personnel actively contact clinical laboratories (on a regular basis, depending on the size of the laboratory) to ascertain laboratory-confirmed cases of infection occurring within the surveillance area (*1*). In 2004, FoodNet began collecting data regarding which laboratory-confirmed infections were associated with outbreaks of *Salmonella* and STEC O157. FoodNet also conducts surveillance for hemolytic uremic syndrome (HUS), a complication of STEC infection characterized by renal failure and microangiopathic hemolytic anemia, through a network of pediatric nephrologists and infection-control practitioners, and validates diagnoses through reviews of hospital discharge data. Because of the time required to review hospital records, this report contains preliminary HUS data for 2007, the most recent data available (*1*).

Preliminary incidence rates for 2008 were calculated by dividing the number of laboratory-confirmed infections by U.S. Census Bureau population estimates for 2007. The FoodNet surveillance population was approximately 46 million persons (15% of the U.S. population) in 2007. Final incidence rates will be reported when population estimates for 2008 are available.

Surveillance Results

In 2008, a total of 18,499 laboratory-confirmed cases of infection in FoodNet surveillance areas were identified. The number of infections and incidence per 100,000 population were reported as follows: *Salmonella* (7,444; 16.20), *Campylobacter* (5,825; 12.68), *Shigella* (3,029; 6.59), *Cryptosporidium* (1,036; 2.25), STEC O157 (513; 1.12), STEC non-O157 (205; 0.45), *Yersinia* (164; 0.36), *Listeria* (135; 0.29), *Vibrio* (131; 0.29), and *Cyclospora* (17; 0.04). Substantial variation in incidence rates occurred among surveillance areas (Table 1). Among all age groups (<4 years, 4–11 years, 12–19 years, 20–49 years, and ≥50 years)†, the highest incidence occurred among children aged <4 years for all infections except those caused by *Cyclospora* and *Vibrio* (Table 2).

Among age groups of persons infected with the following pathogens, the percentage of persons hospitalized was highest in persons aged ≥50 years: *Listeria* (86.2%), STEC O157 (53.3%), *Vibrio* (45.6%), *Salmonella* (40.0%), *Yersinia* (37.5%), *Shigella* (27.9%), *Cryptosporidium* (24.5%), and *Campylobacter* (20.5%). Among age groups of persons infected with the following pathogens, the case fatality rate (CFR) was highest in persons aged ≥50 years: *Listeria* (19.5%), *Vibrio* (7.4%), *Salmonella* (1.3%), *Shigella* (0.4%), and *Campylobacter* (0.4%). For infection with STEC O157, the CFR was highest among children aged <4 years (2.8%); for infection with *Cryptosporidium* and *Yersinia*, the CFR was highest in persons aged 20–49 years (1.3% and 3.0%, respectively).

Among 6,750 (91%) *Salmonella* isolates serotyped, 10 serotypes accounted for 73% of infections: Enteritidis, 1,356 (20.1%); Typhimurium, 1,077 (16.0%); Newport, 681 (10.1%); Javiana, 423 (6.3%); Saintpaul, 403 (6.0%); I 4,[5],12:i:-, 269 (4.0%); Muenchen, 213 (3.2%); Heidelberg, 198 (2.9%); Montevideo, 194 (2.9%); and Braenderup, 108 (1.6%). Among 131 (92%) *Vibrio* isolates for which the species was identified, 72 (55.0%) were *parahaemolyticus,* 19 (14.5%)

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

† Age groups correspond to those defined by CDC's Healthy People in Every Stage of Life goals. Available at http://www.cdc.gov/osi/goals/people.html.

TABLE 1. Incidence* of laboratory-confirmed bacterial and parasitic infection in 2008† and postdiarrheal hemolytic uremic syndrome (HUS) in 2007, by site and pathogen, compared with national health objectives§ — Foodborne Diseases Active Surveillance Network, United States

Pathogen	California	Colorado	Connecticut	Georgia	Maryland	Minnesota	New Mexico	New York	Oregon	Tennessee	Overall 2008	National health objective§
Bacteria												
Campylobacter	30.23	14.36	15.13	7.15	6.66	16.97	17.97	11.20	18.20	7.68	**12.68**	12.30
Listeria	0.65	0.15	0.46	0.27	0.30	0.13	0.25	0.45	0.16	0.23	**0.29**	0.24
Salmonella	14.62	12.48	14.10	23.97	15.02	14.53	26.40	10.15	10.59	14.63	**16.20**	6.80
Shigella	4.83	3.15	1.14	11.51	2.05	5.96	8.02	0.77	1.97	15.56	**6.59**	—¶
STEC** O157	1.14	3.04	0.74	0.44	0.59	2.27	0.81	1.20	1.49	0.84	**1.12**	1.00
STEC non-O157	0.06	0.89	0.49	0.26	0.55	0.98	1.47	0.40	0.13	0.06	**0.45**	—
Vibrio	0.65	0.15	0.40	0.20	0.59	0.15	0.10	0.19	0.32	0.16	**0.29**	—
Yersinia	0.34	0.26	0.43	0.47	0.23	0.33	0.15	0.45	0.40	0.31	**0.36**	—
Parasites												
Cryptosporidium	1.32	1.00	1.17	2.66	0.94	4.50	8.83	2.65	1.44	0.70	**2.25**	—
Cyclospora	0.00	0.00	0.11	0.02	0.05	0.06	0.10	0.00	0.00	0.05	**0.04**	—
HUS††	2.43	0.98	0.47	1.08	0.27	2.83	—	1.31	2.54	3.91	**1.75**	0.90
Surveillance population (millions)	3.25	2.70	3.50	9.54	5.62	5.20	1.97	4.27	3.75	6.16	**45.95**	

* Per 100,000 population.
† Data for 2008 are preliminary.
§ Current *Healthy People 2010* objective 10-1 targets for incidence of *Campylobacter*, *Salmonella*, Shiga toxin-producing *Escherichia coli* O157, and *Listeria* infections, and HUS.
¶ No national health objective exists for these pathogens.
** Shiga toxin-producing *Escherichia coli*.
†† Incidence of postdiarrheal HUS in children aged <5 years; denominator is surveillance population aged <5 years in sites that conduct hospital discharge data review (New Mexico excluded).

TABLE 2. Incidence* of laboratory-confirmed bacterial and parasitic infections in 2008,† by age group — Foodborne Diseases Active Surveillance Network, United States

	Age group (yrs)§				
Pathogen	**<4**	**4–11**	**12–19**	**20–49**	**≥50**
Bacteria					
Campylobacter	28.54	10.06	9.37	12.40	12.27
Listeria	0.76	—¶	—	0.15	0.63
Salmonella	74.65	19.28	11.29	11.41	13.09
Shigella	27.86	25.67	2.99	3.61	1.70
STEC** O157	4.24	2.57	1.51	0.59	0.65
STEC non-O157	2.52	0.86	0.63	0.25	0.14
Vibrio	0.08	0.04	0.10	0.27	0.49
Yersinia	2.24	0.25	0.30	0.17	0.35
Parasites					
Cryptosporidium	6.08	3.05	1.73	2.32	1.38
Cyclospora	—	—	0.04	0.03	0.06

* Per 100,000 population.
† Data for 2008 are preliminary.
§ Age groups defined in CDC's Healthy People in Every Stage of Life goals, available at http://www.cdc.gov/osi/goals/people.html.
¶ No cases reported.
** Shiga toxin-producing *Escherichia coli*.

were *vulnificus*, and eight (6.1%) were *alginolyticus*. Among 205 STEC non-O157 isolates tested for O antigen determination, 185 (90%) had an identifiable O antigen, most commonly O26 (28.1%), O103 (27.0%), or O111 (19.5%).

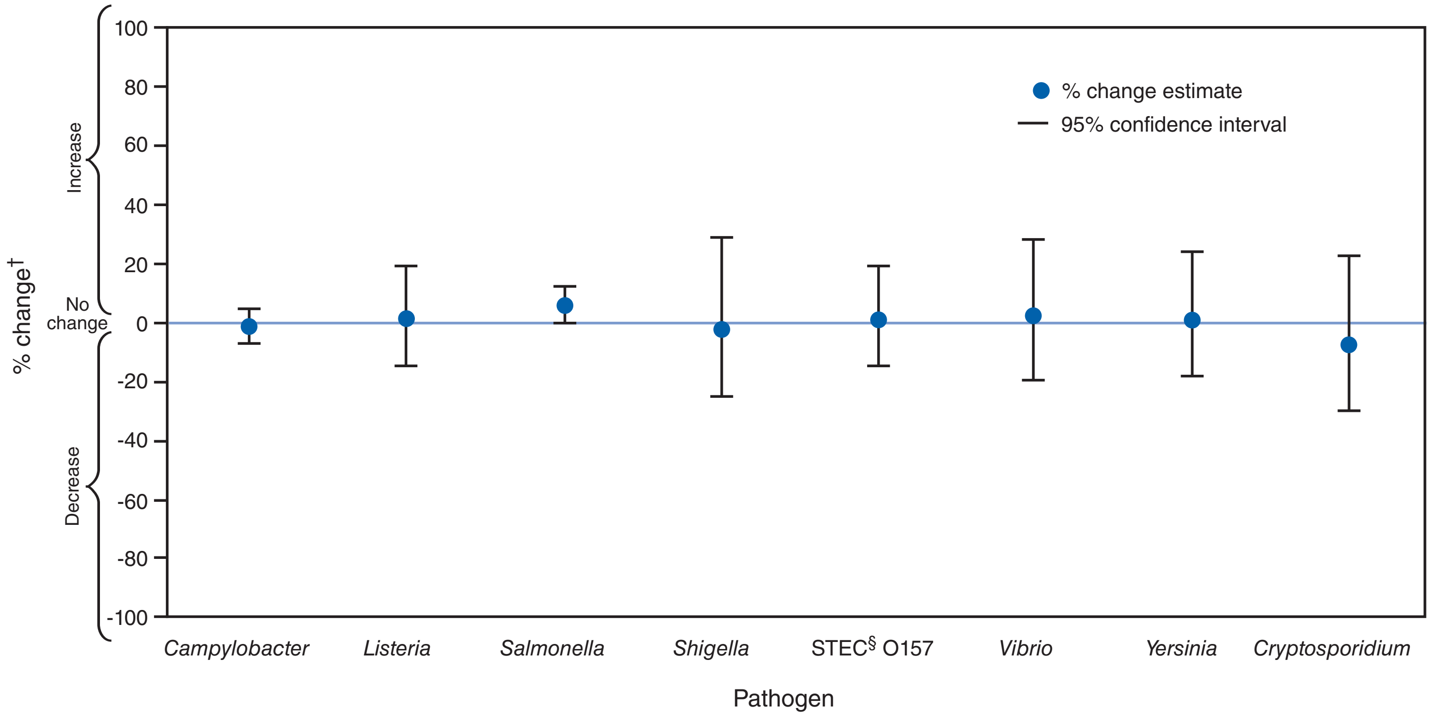
In 2007, FoodNet identified 77 cases of postdiarrheal HUS in persons aged <18 years (0.73 cases per 100,000 children). Among these 77 cases, 52 (68%) occurred in children aged <5 years (1.75 cases per 100,000 children).

Comparison with Previous Years

A main-effects, log-linear Poisson regression model (negative binomial) was used to estimate statistically significant changes in incidence of infections in 2008 compared with previous years. This model accounts for site-to-site variation and the change in population in FoodNet surveillance areas over time (*1*). The average annual incidence for the preceding 3 years (2005–2007) and the first 3 years of surveillance (1996–1998) were used for comparison. The estimated change in incidence between 2008 and the comparison periods was calculated with 95% confidence intervals (CIs). For HUS surveillance, the average annual incidence for 2004–2006 was used as the comparison period. Changes over time were not analyzed for STEC non-O157, partly because changes in clinical laboratory practices, such as increases in Shiga toxin testing with enzyme immunoassay, likely affected reporting (*3*).

The estimated incidence of *Campylobacter*, *Listeria*, *Salmonella*, *Shigella*, STEC O157, *Vibrio, Yersinia,* and *Cryptosporidium* infections did not change significantly compared with the preceding 3 years (Figure 1). The apparent increase in *Salmonella* infections was not significant (CI = 0%–12%). Among the 10 most common *Salmonella* serotype infections, the incidence of Enteritidis increased 19% (CI = 3%–39%), Saintpaul increased 182% (CI = 112%–274%), and Heidelberg decreased 28% (CI = 12%–41%); the incidence of the other seven serotypes did not change significantly. Trends for *Cyclospora* infection were not calculated because of low incidence across sites and years. The estimated incidence of postdiarrheal HUS in

FIGURE 1. Percentage change in incidence of laboratory-confirmed bacterial and parasitic infections in 2008* compared with average annual incidence during 2005–2007, by pathogen — Foodborne Diseases Active Surveillance Network, United States



* Data for 2008 are preliminary.
† *No significant change* = 95% confidence interval is both above and below the no change line; *significant increase* = estimate and entire 95% confidence interval are above the no change line; *significant decrease* = estimate and entire 95% confidence interval are below the no change line.
§ Shiga toxin-producing *Escherichia coli*.

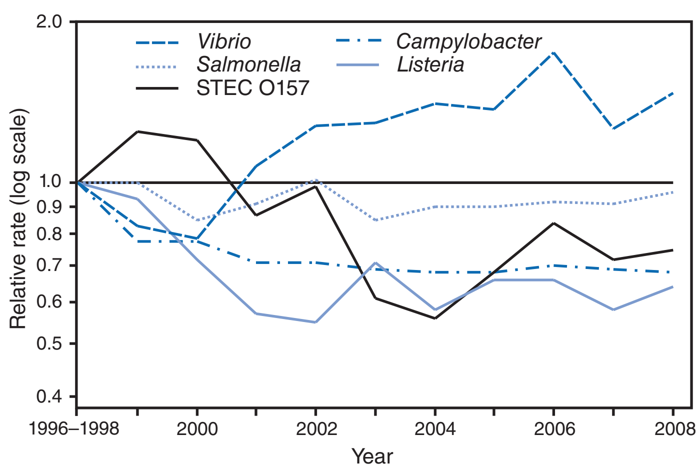
children aged <5 years in 2007 did not change significantly compared with 2004–2006.

The lack of significant change in recent years is in contrast to trends from 1996, when FoodNet surveillance began, to 2004 (Figure 2). By 2008, in comparison with 1996–1998, modeled relative rates of infection with *Yersinia* had decreased 48% (CI = 35%–59%), *Shigella* had decreased 40% (CI = 15%–58%), *Listeria* had decreased 36% (CI = 20%–49%), *Campylobacter* had decreased 32% (CI = 27%–37%), and STEC O157 had decreased 25% (CI = 8%–39%), but *Vibrio* had increased 47% (CI = 9%–99%). The estimated incidence of infection with *Cryptosporidium* and *Salmonella* did not change significantly over this period.

Outbreak-Associated Cases of Infection

In 2008, outbreak-associated infections accounted for 132 (25.7%) of STEC O157 cases and 547 (7.4%) of *Salmonella* cases. Two large multistate outbreaks of *Salmonella* infections that included FoodNet sites were investigated in 2008: an outbreak of *S.* Saintpaul infections associated with imported produce (*4*) and an outbreak of *S.* Typhimurium infections associated with peanut butter and peanut butter–containing products (*5*).

FIGURE 2. Relative rates of laboratory-confirmed infections with *Vibrio*, *Salmonella*, STEC* O157, *Campylobacter*, and *Listeria* compared with 1996–1998 rates, by year — Foodborne Diseases Active Surveillance Network, United States, 1996–2008†



* 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 can differ. Data for 2008 are preliminary.

Reported by: *D Vugia, MD, California Dept of Public Health. A Cronquist, MPH, Colorado Dept of Public Health and Environment. M Cartter, MD, Connecticut Dept of Public Health. M Tobin-D'Angelo, MD, Div of Public Health, Georgia Dept of Human Resources. D Blythe, MD, Maryland Dept of Health and Mental Hygiene. K Smith, DVM, Minnesota Dept of Health. S Lathrop, PhD, New Mexico Dept of Health. D Morse, MD, New York State Dept of Health. P Cieslak, MD, Oregon Public Health Div. J Dunn, DVM, Tennessee Dept of Health. KG Holt, DVM, Food Safety and Inspection Svc, US Dept of Agriculture. Center for Food Safety and Applied Nutrition, Food and Drug Admin. OL Henao, PhD, RM Hoekstra, PhD, FJ Angulo, DVM, PM Griffin, MD, RV Tauxe, MD, Div of Foodborne, Bacterial, and Mycotic Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases; KK Trivedi, MD, EIS Officer, CDC.*

Editorial Note: Despite numerous activities aimed at preventing foodborne human infections, including the initiation of new control measures after the identification of new vehicles of transmission (e.g., peanut butter–containing products), progress toward the national health objectives has plateaued, suggesting that fundamental problems with bacterial and parasitic contamination are not being resolved. Although significant declines in the incidence of certain pathogens have occurred since establishment of FoodNet, these all occurred before 2004. Of the four pathogens with current *Healthy People 2010* targets, *Salmonella*, with an incidence rate of 16.2 cases per 100,000 in 2008, is farthest from its target for 2010 (6.8). The lack of recent progress toward the national health objective targets and the occurrence of large multistate outbreaks point to gaps in the current food safety system and the need to continue to develop and evaluate food safety practices as food moves from the farm to the table.

Efforts to reduce contamination of meat, poultry, produce, and other foods are ongoing. In 2006, the U.S. Department of Agriculture's Food Safety and Inspection Service implemented a *Salmonella* initiative program to prevent *Salmonella* contamination of meat and poultry.[§] Industry response to the program has resulted in a decrease in the percent-positive rate for *Salmonella* in raw broiler chicken from 11.4% in 2006 to 7.3% in 2008 (*6*). Additionally, the percentage of broiler chicken slaughter establishments with *Salmonella* contamination rates at half or below half of the performance standard increased from 49% in 2006 to 82% in 2008 (2010 target is 90%) (*6*). However, the percentage of ground beef samples yielding STEC O157 increased from 0.24% in 2007 to 0.47% in 2008 (*7*); whether the increase was related to focused sampling of higher risk facilities or improved laboratory detection, or whether the microbial load was actually higher, is unknown. In August 2008, the Food and Drug Administration (FDA) published a rule allowing irradiation of fresh iceberg lettuce and fresh spinach to help protect consumers from *Salmonella* and STEC O157; FDA also piloted an advanced screening system to identify food safety threats at all U.S. borders.[¶]

Enhanced and food-specific measures are needed to 1) control or eliminate pathogens in domestic and imported food; 2) reduce or prevent contamination during growing, harvesting, and processing; and 3) continue the education of restaurant workers and consumers about risks and prevention measures. In particular, continued efforts are needed to understand how contamination of fresh produce and processed foods occurs and to develop and implement measures that reduce it. More outbreaks can be recognized and their causative foods identified with rapid and complete subtyping of pathogens and with rapid standardized interviews of ill persons and appropriately selected controls.

The reported incidence of *Campylobacter*, *Salmonella,* and STEC O157 infections varies substantially by site. For example, incidence of *Campylobacter* is highest in California, incidence of *Salmonella* is highest in New Mexico and Georgia, and incidence of STEC O157 is highest in Colorado. Previous FoodNet studies suggest that even after controlling for laboratory testing practices, site-to-site variation in disease incidence reflects regional differences in exposures, which might include the consumption of contaminated food or exposure through other routes of transmission (*8,9*).

The reported incidence of *Campylobacter*, *Cryptosporidium, Listeria, Salmonella*, *Shigella*, STEC O157, and *Yersinia* infections remains highest among children aged <4 years. For most pathogens under surveillance, persons aged ≥50 years are at greater risk than are other age groups for hospitalization and death, making aggressive diagnosis and treatment especially important in this age group.

The findings in this report are subject to at least four limitations. First, because FoodNet relies on laboratory diagnoses, changing laboratory practices might affect the reported incidence of some pathogens. For example, fewer laboratory-confirmed infections might be reported as a result of increased use of nonculture tests. Second, many foodborne illnesses (e.g., norovirus infection) are not reported to FoodNet because these pathogens are not identified routinely in clinical laboratories. Third, differences in health-care seeking behaviors between age groups might contribute to a much higher incidence of reported illness in certain age groups (e.g., young children and older persons) (*10*). Finally, although the FoodNet population is similar demographically to the U.S. population, the findings might not be generalizable (*1*).

[§] Additional information about the *Salmonella* verification sampling program is available at http://www.fsis.usda.gov/oppde/rdad/frpubs/04-026n.pdf.

[¶] Additional information about the FDA Food Protection Plan is available at http://www.fda.gov/oc/initiatives/advance/food/progressreport1108.html.

Consumers can reduce their risk for foodborne illness by following safe food-handling and preparation recommendations and by avoiding consumption of unpasteurized milk, raw or undercooked oysters, or other raw or undercooked foods of animal origin such as eggs, ground beef, and poultry. Risk also can be decreased by choosing pasteurized eggs, high pressure-treated oysters, and irradiated produce. Everyone should wash hands before and after contact with raw meat, raw foods derived from animal products, and animals and their environments. More detailed information on food safety practices is available at http://www.foodsafety.gov and http://www.fightbac.org.

References

1. 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.
2. US Department of Health and Human Services. Food safety. Objective 10-1: Reduce infections caused by key foodborne pathogens. Healthy people 2010 (conference ed, in 2 vols). Washington, DC: US Department of Health and Human Services; 2000. Available at http://www.healthypeople.gov/document/pdf/volume1/10food.pdf.
3. CDC. Laboratory-confirmed non-O157 Shiga toxin-producing *Escherichia coli*—Connecticut, 2000–2005. MMWR 2007;56:29–31.
4. CDC. Outbreak of *Salmonella* serotype Saintpaul infections associated with multiple raw produce items—United States, 2008. MMWR 2008;57:929–34.
5. CDC. Multistate outbreak of *Salmonella* infections associated with peanut butter and peanut butter-containing products—United States, 2008–2009. MMWR 2009;58:1–6.
6. US Department of Agriculture. *Salmonella* verification testing program for raw meat and poultry. Washington, DC: US Department of Agriculture, Food Safety and Inspection Service; 2009. Available at http://www.fsis.usda.gov/science/microbiology/index.asp.
7. US Department of Agriculture. Testing of raw ground beef and raw ground beef component samples for *E. coli* O157:H7: year-to-date totals. Washington, DC: US Department of Agriculture, Food Safety and Inspection Service; 2009. Available at http://www.fsis.usda.gov/science/ecoli_raw_beef_testing_data_ytd/index.asp.
8. Bender JB, Smith KE, McNees AA, et al. Factors affecting surveillance data on *Escherichia coli* O157 infections collected from FoodNet sites, 1996–1999. Clin Infect Dis 2004;38(Suppl 3):S157–64.
9. Ailes E, Demma L, Hurd S, et al. Continued decline in the incidence of *Campylobacter* infections, FoodNet 1996–2006. Foodborne Pathog Dis 2008;5:329–37.
10. 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.

Cholera Outbreak — Southern Sudan, 2007

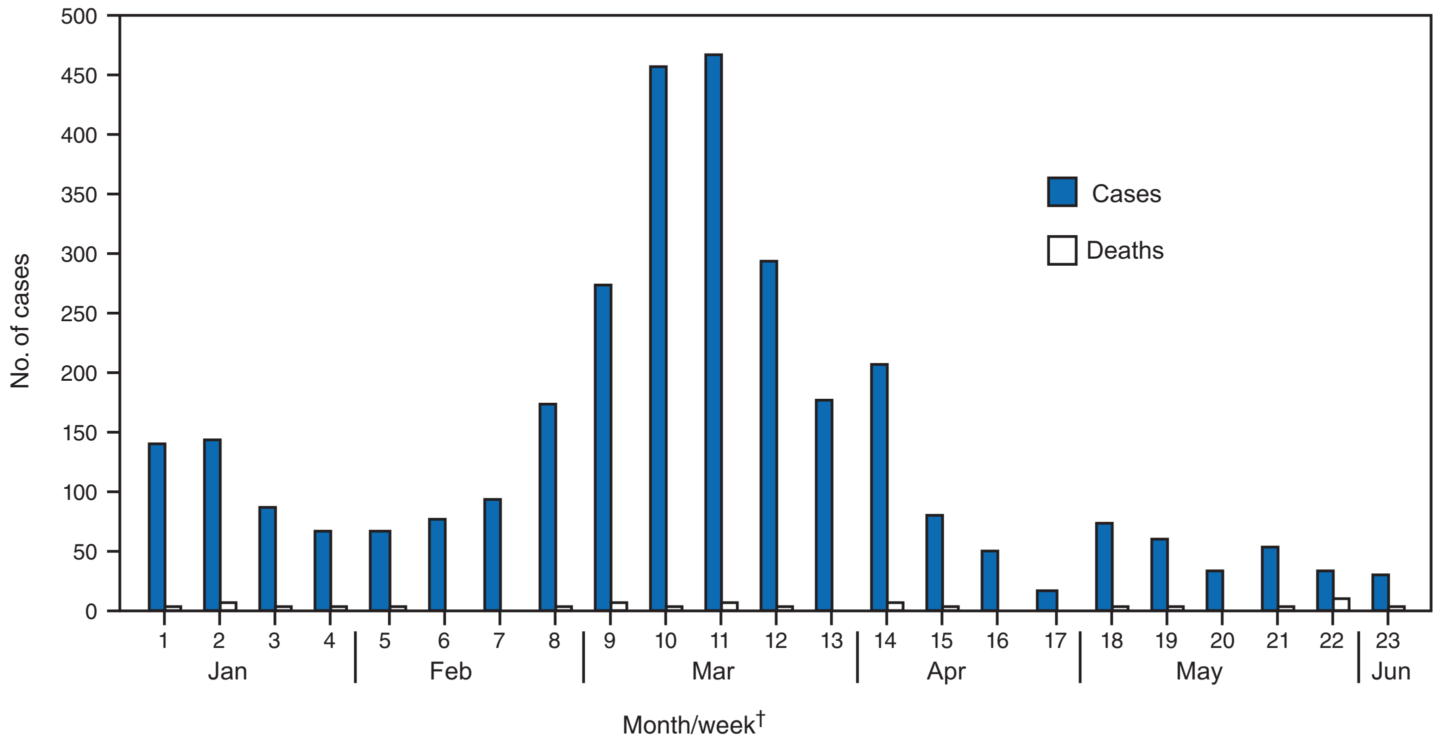
Vibrio cholerae causes cholera, an acute infectious diarrheal disease that can result in death without appropriate therapy, depending on the severity of the disease (*1*). War, poverty, inadequate sanitation, and large numbers of refugees and internally displaced persons (IDPs) are major precursors to cholera outbreaks (*2*). In 2005, Southern Sudan ended its 22-year civil war with North Sudan; as a result, IDPs and refugees are returning to the south (*3,4*). During April–June 2007, investigators from the Southern Sudan Field Epidemiology and Laboratory Training Program (SS-FELTP) and CDC investigated a cholera outbreak in the town of Juba, Southern Sudan. This report summarizes the results of that investigation, which found that 3,157 persons were diagnosed with suspected cholera during January–June 2007, with 74 deaths resulting from the disease. An environmental investigation revealed suboptimal hygiene practices and a lack of water and sanitation infrastructure in Juba. A case-control study indicated that persons less likely to have cholera were more likely to have consumed hot meals containing meat during the outbreak. Contaminated food or water were not identified as possible sources of the cholera outbreak in Juba. However, this might be attributed to limitations of the study, including small sample size. Cholera can reach epidemic proportions if adequate control measures are not implemented early. Mass media campaigns are important for current and new residents in Juba to understand the importance of proper food handling, clean water, and optimal hygiene practices to prevent the spread of cholera.

After the civil war with North Sudan ended in 2005, displaced residents began returning to Juba. Juba is a major urban area in Central Equatoria State and is considered the unofficial capital of Southern Sudan. Housing in Juba for returning residents consisted of informal and formal settlements that included old brick homes, tent camps, and mud thatch houses. The major water sources were borehole well pumps, shallow watering holes, the Nile River, and tanker trucks. Latrines and indoor plumbing were lacking; as a result, some residents used open fields for defecation. Juba had one large open-air marketplace, in which persons could shop for food items, and very few restaurants. In February 2006, a large cholera outbreak began in Juba, resulting in 6,329 suspected infections as of June 2006, with sporadic cases continuing throughout the year.

Epidemiologic Investigation

CDC's Coordinating Office for Global Health received a request for technical assistance from SS-FELTP in March 2007 to investigate a second large cholera outbreak in Juba. Investigators arrived at the end of April 2007, after the outbreak had peaked (weeks 10–11) (Figure) and after information about cholera prevention had been communicated to Juba residents. At the time of the investigation, Southern Sudan's Ministry of Health (MOH) was conducting a cholera prevention campaign that included radio prevention messages and community education forums. MOH defined a suspected cholera case as illness in a person of any age with acute watery diarrhea

FIGURE. Number of suspected cholera cases,* by week of illness onset, and number of cholera deaths — Juba, Southern Sudan, 2007



* Defined as illness in a person of any age with acute watery diarrhea.
† World Health Organization epidemiologic week.

during the 2007 outbreak. Contaminated water and food were hypothesized to be the main sources of cholera in Juba based on previous cholera studies conducted in Africa (*1,2*) and the lack of sanitation infrastructure observed in Juba. Potential risk factors for cholera were identified after discussions with persons living in Juba and health officials about possible routes of transmission. A review of the weekly surveillance records kept jointly by the World Health Organization (WHO) Juba office and MOH identified 3,157 persons with diagnoses of suspected cholera (case fatality rate: 2%) during January–June 2007 in Juba. The outbreak peaked in March and ended in June 2007. However, isolated cases continued for the remainder of 2007. Information on the number of persons infected with cholera was obtained from the Juba Teaching Hospital (JTH), cholera treatment centers coordinated by Medecins Sans Frontiers (MSF), and other local hospitals and clinics. A review of records from JTH revealed that information on sex, age, and symptoms was incomplete in the hospital admissions logbook.

Environmental Investigation

Latrines, chlorine for treating water, and soap were lacking in Juba. Residents collected water from borehole pump wells using jerry cans (large plastic containers with small openings), the Nile River, and tanker trucks selling untreated Nile River water. Upon initial inspection, investigators observed an open defecation field near the Nile River, pit latrines built uphill from nearby borehole wells, and several wells closed because of contamination.

Case-Control Study

A prospective matched case-control study was conducted during May 24–June 5 by SS-FELTP trainees and CDC investigators. A questionnaire was developed that included demographic characteristics, symptoms, potential exposures (e.g., related to food, water, personal hygiene, and sanitation), large gatherings (e.g., funerals and weddings), and knowledge of cholera prevention. Case-patients were identified upon admission to the infectious disease ward at JTH. For the purposes of the study, a case was defined as illness in a person of any age with acute watery diarrhea (with or without vomiting) in the 4 days before arriving at JTH. Selection of case-patients was consecutive. All persons admitted to JTH during May 24–June 5 who met the case definition were included in the study. Two case-patients died before they could be enrolled in the study and thus were excluded. Among those households with more than one case-patient, only the first ill person was enrolled in the study; secondary cases were excluded. Interviewers traveled to each case-patient's place of residence and matched each case-patient to two community controls by age (within 5 years), sex, and neighborhood. Selected control residences were chosen randomly and could not be residences that were adjacent to the case-patient's residence. Persons living next to the case-patients' residences might have been more likely to also be infected with cholera because many of the home communes observed belonged to the same family, and members shared meals, latrines (if existing), and courtyards. Controls and their household members had no history of diarrhea since January 2007. Case-patients were interviewed in the hospital, and controls were interviewed in their residences. Information was collected on 42 cases and 81 controls. Both bivariate (chi-square) and multivariable (conditional logistic regression) analyses were performed. The multivariable analysis included all variables that were significant ($p \leq 0.05$) in the bivariate analysis. Stool specimens gathered by rectal swabs from 10 case-patients with suspected cholera who had not received antimicrobial treatment by a certified laboratory technologist were stored in Cary-Blair medium and shipped to the Kenya Medical Research Institute (KEMRI) laboratory in Nairobi, Kenya. Because of limited resources, only 10 specimens were shipped to KEMRI.

The median age of both case-patients and controls was 30 years (range: 3–60 years); 2% of case-patients and 1% of controls were aged <5 years. Approximately half (52%) of the case-patients entered the hospital within 1 day of becoming ill (Table 1). Other symptoms included vomiting, fever, and leg cramps. One third of the case-patients were reported as being severely dehydrated based on the nursing notes in the medical chart. Treatment consisted of oral fluids, tetracycline, doxycycline, and intravenous fluids and varied among case-patients. The majority of case-patients received intravenous fluids, but not all received oral fluids, tetracycline, or doxycycline.

The unadjusted matched analysis (Table 2) indicated that persons who 1) self-identified as visitors to Juba (matched odds ratio [mOR] = 5.6); 2) had lived less than 1 year in Juba (mOR = 4.6); and 3) chose a water source close to their place of residence (i.e., ≤20 meters [mOR = 3.2]) were at greater odds of having cholera, all significant associations at $p \leq 0.05$. Using tanker trucks drawing water from the Nile River as the main source of drinking water was not significantly associated with cholera. A significant association was observed for persons who did not treat their water (when compared with those who used chlorine treatment) were found to be at less risk for cholera (mOR = 0.2). No significant associations were observed between cholera and hygiene-related factors (i.e., using soap to wash hands before eating or after defecation, and having soap present in the house) or eating leftover foods. Consuming a meal with fish served hot in the 3 days before becoming ill (case-patients) and before being interviewed (controls), was significantly protective for cholera (mOR = 0.3). A similar significant protective association was found for hot meals containing meat (mOR = 0.2). No significant associations with other local food items or attendance at large gatherings (e.g., funerals or weddings) were identified. After the significant variables from the bivariate analysis were included in a multivariable analysis, only consuming at least one hot meal containing meat in the 3 days before becoming ill (case-patients) or before being interviewed (controls) (adjusted mOR = 0.3 [95% confidence interval = 0.1–0.9], p = 0.03) was associated with a lowered risk for cholera.

TABLE 1. Clinical characteristics of 42 cholera cases* — Juba, Southern Sudan, 2007

Characteristic	No.	(%)
Age (yrs) (median: 30)		
<5	1	(2)
5–14	5	(12)
15–25	6	(14)
26–44	20	(47)
≥45	10	(24)
Sex		
Male	22	(52)
Female	20	(48)
No. of days ill before hospital admission		
1	22	(52)
2	14	(33)
3	5	(12)
4	1	(2)
Watery diarrhea†		
Yes	42	(100)
No	0	—
Vomiting†		
Yes	39	(93)
No	3	(7)
Leg cramps†		
Yes	15	(36)
No	27	(64)
Fever†		
Yes	42	(100)
No	0	—
Dehydration level†		
None	5	(12)
Some	23	(55)
Severe	14	(33)
Oral fluids†		
Yes	14	(33)
No	28	(67)
Intravenous fluids†		
Yes	39	(93)
No	3	(7)
Tetracycline†		
Yes	2	(5)
No	40	(95)
Doxycycline†		
Yes	28	(67)
No	14	(33)

* A case was defined as illness in a person of any age with acute watery diarrhea (with or without vomiting) in the 4 days before arriving at Juba Teaching Hospital.
† Obtained from case-patient charts at Juba Teaching Hospital.

TABLE 2. Association of selected exposures with cholera illness — Juba, Southern Sudan, 2007

Exposure	Cases* No.	Cases* (%)	Controls No.	Controls (%)	Matched odds ratio	(95% CI†)	p value§
Nonresident of Juba vs. resident (referent)	15/41	(36.6)	11/81	(13.6)	5.6	(1.6–19.6)	0.001
<1 yr in Juba vs. ≥1 yr in Juba (referent)	17/42	(40.5)	17/81	(21.0)	4.6	(1.4–14.8)	0.006
Drinking water source ≤20 m from residence vs. >20 m away (referent)	28/41	(68.3)	37/80	(46.3)	3.2	(1.2–8.4)	0.006
Drinking water from tanker truck vs. other water sources (referent)	6/35	(17.1)	9/66	(13.6)	1.8	(0.5–6.8)	0.243
Drinking untreated water vs. chlorinated water (referent)	28/40	(70.0)	71/79	(89.9)	0.2	(0.1–0.7)	0.007
Consumed a meal with hot fish vs. meal without hot fish (referent)	19/42	(45.2)	53/81	(65.4)	0.3	(0.1–0.8)	0.006
Consumed a meal with hot meat vs. meal without hot meat (referent)	20/42	(47.6)	66/81	(81.5)	0.2	(0.1–0.5)	0.001
Defecating in an open field vs. not defecating in open field (referent)	12/42	(28.6)	15/81	(18.5)	2.5	(0.8–7.6)	0.070
Not washing hands post defecation with soap vs. washing hands (referent)	24/42	(57.1)	54/81	(66.7)	1.7	(0.7–3.9)	0.151
Not washing hands before eating with soap vs. washing hands (referent)	15/42	(35.7)	34/81	(42.0)	1.3	(0.6–2.9)	0.343
Attended large gathering vs. did not attend one (referent)	9	(21.4)	9	(11.4)	2.2	(0.8–6.7)	0.100
Eat or store leftover food vs. did not eat or store (referent)	25	(59.5)	47	(58.0)	1.0	(0.4–2.5)	0.562
Soap not present in house vs. soap present in the house (referent)	11	(32.4)	27	(33.3)	1.0	(0.3–2.9)	0.600

* A case was defined as illness in a person of any age with acute watery diarrhea (with or without vomiting) in the 4 days before arriving at Juba Teaching Hospital.
† Confidence interval.
§ Significant at p≤0.05.

Laboratory Results

Six of the 10 rectal swabs collected from the case-patients in the case-control study before antimicrobial treatment was started yielded *Vibrio cholerae* biotype El Tor, serogroup O1, serotype Inaba. This type was resistant to sulfatrimethoprim, nalidixic acid, sulfisoxazole, streptomycin, and furazolidone.

Control Measures

The cholera outbreak in Juba ended in June 2007. At the time of the investigation, MOH established a working group with key stakeholders (the United Nations Children's Fund, the United Nations Office for Humanitarian Affairs, and WHO) and other international nongovernmental organizations to develop a strategy for cholera prevention and preparedness for Southern Sudan. The following strategies were implemented for the 2007 outbreak and any future outbreaks: 1) community health education, with emphasis on improved hygiene practices and sanitation; 2) establishment of food safety regulations for the local market; 3) expansion of the municipal water supply; 4) establishment of proper city waste disposal systems and house pit latrines; 5) banning of defecation in the three main streams in Juba; 6) a shift from informal to formal planned settlements for houses; and 7) supervision of water treatment with chlorine at collection points along the Nile River.

Reported by: *L Kur, MS, C Mounir, MD, J Lagu, MD, M Muita, MD, Southern Sudan Field Epidemiology and Laboratory Training Program; J Rumunu, MD, Ministry of Health, Government of Southern Sudan. B Ochieng, Kenya Medical Research Institute, Nairobi, Kenya. A Weathers, MPP, P Nsubuga, MD, E Maes, PhD, Div of Global Public Health Capacity Development, Coordinating Office for Global Health; I Rolle, PhD, EIS Officer, CDC.*

Editorial Note: Cholera outbreaks continue to occur throughout Africa, despite advances in cholera surveillance, treatment, and prevention. The main contributors to cholera outbreaks worldwide include a lack of clean water, inadequate sanitation, and suboptimal food-handling practices (*5*). Cholera is a major public health concern because it induces acute severe diarrhea and can result in death if oral rehydration is not administered quickly (*1*). Once a cholera outbreak occurs, simple interventions can prevent infection: 1) washing hands with soap before eating, cooking, and after defecation; 2) eating cooked food served hot; and 3) drinking water treated by a recommended method (e.g., boiling, chlorination, or solar disinfection through UV+ heat) (*5*).

This investigation of cholera in Juba did not implicate a single source of water or food, which are common modes of cholera transmission. The unadjusted matched analysis indicated that the following were risk factors for cholera: 1) using a water source close to the place of residence (i.e., ≤20 meters); 2) being a visitor to Juba; and 3) living less than 1 year in Juba. Persons consuming a meal with hot meat or hot fish were less likely to have cholera. Surprisingly, persons who did not treat their water also appeared to have a lower risk for cholera. Persons using untreated water might have been previously exposed to cholera and therefore might have developed some immunity. Moreover, among persons with cholera who treated their water, poor techniques for treating water with chlorine might have resulted in exposure to cholera. This is especially likely if those persons who used chlorine were more likely to have used visibly turbid water from the Nile River that was imperfectly disinfected by chlorine.

Despite these findings, the majority of the associations observed became insignificant in the multivariable analysis, which indicated that the initial results were artifacts or were attributed to limitations of the study. Only eating a hot meal containing meat in the 3 days before becoming ill (case-patients) or being interviewed (controls) remained significantly protective ($p = 0.03$) in the multivariable analysis when all the significant variables from the bivariate analysis were included. Knowledge of proper food handling and the importance of heating foods thoroughly before eating might have helped prevent the transmission of cholera in this population, as suggested by the lower odds of cholera by those persons eating at least one hot meal with meat. Cholera can grow in food kept at room temperature (*5*). Food was routinely cooked outside using makeshift stoves, and cold storage of food was limited because of a lack of electricity. Previous studies of cholera outbreaks have implicated the consumption of cold foods (e.g., seafood and raw vegetables) as risk factors for cholera and recommended that food be cooked and eaten hot (*6,7*). Treatment of the case-patients consisted of the recommended WHO treatment of rehydration using oral rehydration and intravenous therapy. Approximately half of the case-patients received antibiotics, which WHO indicates should only be administered in severe cases (*5*). Only 14 case-patients were classified as having severe dehydration.

The findings in this report are subject to at least three limitations. First, the data collected in the case-control study (e.g., information related to the main source of drinking water and water treatment supplies) were self-reported. In addition, widespread exposure to health messages might have increased reports of risk-reducing behavior because of social desirability bias. The investigation team arrived after the outbreak had peaked, and the health messages had been in operation for at least 1 month before the team's arrival. Second, misclassification bias might have occurred because some of the controls might have developed immunity to cholera, and laboratory tests revealed that, of the 10 case-patients tested, only six were found to have cholera. Controls were not tested for cholera. As a result, some of the cases might not have been actual cases, and some of the controls might have been cases. Finally, the sample size for the case-control study was small and therefore might have limited significant associations for risk factors with p-values ≤ 0.05.

In developing countries such as Southern Sudan or those recovering from war, returning residents might be at greater risk for diseases such as cholera. Cholera prevention strategies recommended by WHO and MSF that could be used for countries recovering from war include 1) encouraging proper food-handling techniques, including eating heated food; 2) intensifying surveillance to detect cases early; 3) building proper pit latrines; 4) cleaning defecation fields; 5) providing soap and chlorine free of charge or at a reduced cost; and 6) implementing appropriate water and sanitation policies (*5,8*).

Acknowledgments

This report is based, in part, on contributions by A Taban, O Jackson, E Kosti, J Benjamin, L Okeny, C Olur, B Samuel, Ministry of Health, Government of Southern Sudan; S Dada, World Health Organization, Juba Office, Southern Sudan; and E Mintz, MD, Div of Bacterial, Foodborne, and Mycotic Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases, and T Handzel, PhD, Div of Emergency and Environmental Health Svcs, National Center for Environmental Health, CDC.

References

1. Sack DA, Sack RB, Balakrish G, Siddique AK. Cholera. Lancet 2004;363:223–33.
2. Gaffga NH, Tauxe RV, Mintz ED. Cholera: a new homeland in Africa? Am J Trop Med Hyg 2007;77:705–13.
3. Sudanese peace treaty signed. Foreign Policy Bull 2006;16:100–33.
4. Alwan A. Resource mobilization for health action in crises. Sudan. Geneva, Switzerland: World Health Organization; 2006. Available at http://www.who.int/hac/donorinfo/cap/Sudan_Workplan_Dec06.pdf.
5. Global Task Force on Cholera Control. Cholera outbreak: assessing the outbreak response and improving preparedness. Geneva, Switzerland: World Health Organization; 2004. Available at http://www.who.int/cholera/publications/cholera_outbreak/en/print.html.
6. CDC. Cholera epidemic associated with raw vegetables—Lusaka, Zambia, 2003–2004. MMWR 2004;53:783–6.
7. Quick RE, Thompson BL, Zuniga A, et al. Epidemic cholera in rural El Salvador: risk factors in a region covered by a cholera prevention campaign. Epidemiol Infect 1995;114:249–55.
8. Medecins Sans Frontiers. Refugee health. An approach to emergency situations. London, England: MacMillan; 1997. Available at http://www.refbooks.msf.org/msf_docs/en/refugee_health/rh1.pdf.

Notice to Readers

Abbreviations for Vaccines in Immunization Schedules: Advisory Committee on Immunization Practices

Each year, the Advisory Committee on Immunization Practices (ACIP) publishes immunization schedules that summarize recommendations for currently licensed vaccines for children aged 18 years and younger, and for adults (*1,2*). In February 2009, ACIP approved a listing of standardized vaccine abbreviations for use in these immunization schedules.

The table of standardized vaccine abbreviations was developed by staff members at CDC; ACIP members and workgroups; editors of *Epidemiology and Prevention of Vaccine-Preventable Diseases* (*3*); and others. These abbreviations are intended to provide a uniform approach to vaccine references used in ACIP recommendations. The standardized vaccine abbreviations are available at http://www.cdc.gov/vaccines/recs/acip/vac-abbrev.htm.

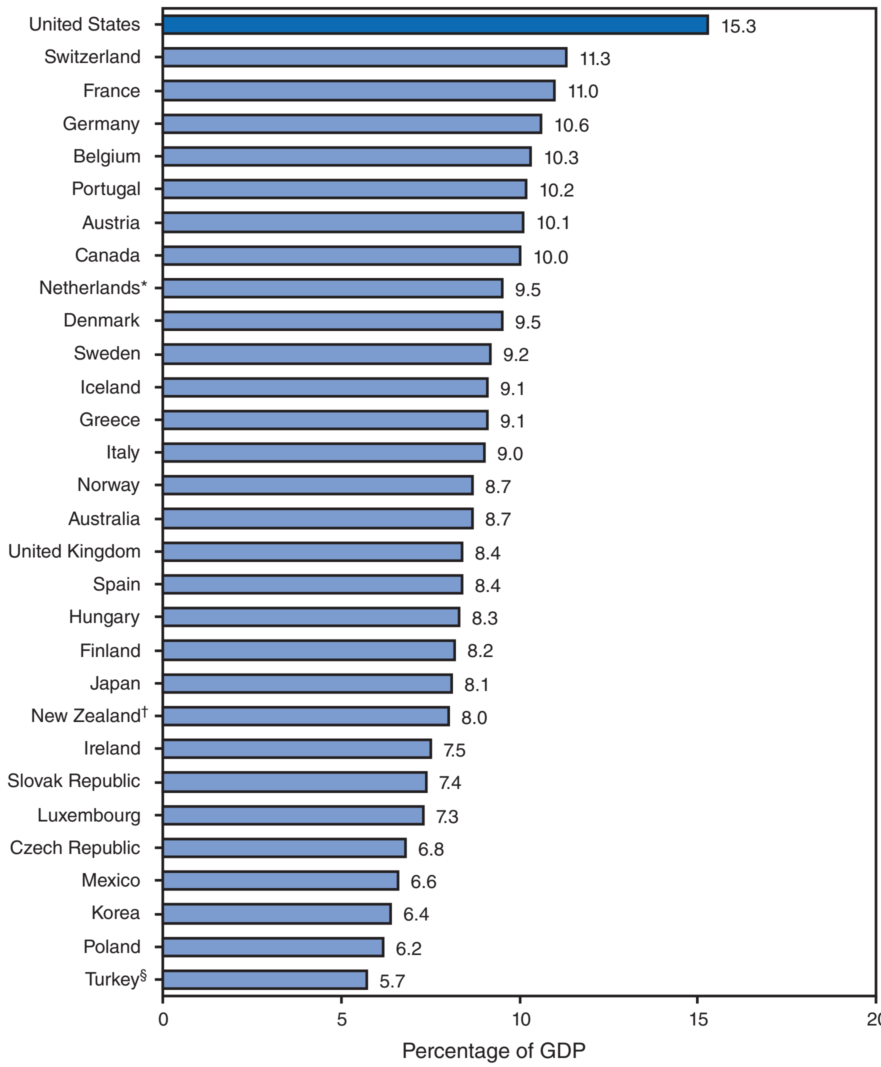
References

1. CDC. Recommended immunization schedules for persons aged 0 through 18 years—United States, 2009. MMWR 2008;57(51&52).
2. CDC. Recommended adult immunization schedule—United States, 2009. MMWR 2009;57(53).
3. CDC. Epidemiology and prevention of vaccine-preventable diseases. Atkinson W, Hamborsky J, McIntyre L, Wolfe S, eds. 10th ed. 2nd printing. Washington, DC: Public Health Foundation; 2008.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Gross Domestic Product (GDP) Spent on Health Care — Selected Countries, 2006



* Based on 2004 data.
† Based on 2003 data.
§ Based on 2005 data.

In 2006, the United States devoted 15.3% of its GDP to health-care spending (i.e., health goods and services plus health-care infrastructure). Seven other countries devoted ≥10% of their GDP to health-care spending: Switzerland, France, Germany, Belgium, Portugal, Austria, and Canada. Five countries devoted <7% of their GDP to health-care spending: Czech Republic, Mexico, Korea, Poland, and Turkey.

SOURCE: Organisation for Economic Co-operation and Development. OECD health data 2008: statistics and indicators for 30 countries. Paris, France: Organisation for Economic Co-operation and Development; 2008. Available at http://www.oecd.org/health/healthdata.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending April 4, 2009 (13th week)*

Disease	Current week	Cum 2009	5-year weekly average†	Total cases reported for previous years 2008	2007	2006	2005	2004	States reporting cases during current week (No.)
Anthrax	—	—	—	—	1	1	—	—	
Botulism:									
foodborne	—	5	0	17	32	20	19	16	
infant	—	12	1	102	85	97	85	87	
other (wound and unspecified)	—	7	0	19	27	48	31	30	
Brucellosis	1	13	2	81	131	121	120	114	CA (1)
Chancroid	2	13	1	29	23	33	17	30	WI (1), TX (1)
Cholera	—	1	0	3	7	9	8	6	
Cyclosporiasis§	1	23	1	135	93	137	543	160	NY (1)
Diphtheria	—	—	—	—	—	—	—	—	
Domestic arboviral diseases§,¶:									
California serogroup	—	—	0	49	55	67	80	112	
eastern equine	—	—	—	3	4	8	21	6	
Powassan	—	—	—	2	7	1	1	1	
St. Louis	—	—	0	10	9	10	13	12	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis§,**:									
Ehrlichia chaffeensis	3	32	2	875	828	578	506	338	NY (1), TN (2)
Ehrlichia ewingii	—	—	—	8	—	—	—	—	
Anaplasma phagocytophilum	2	11	2	583	834	646	786	537	NY (1), NC (1)
undetermined	1	5	1	65	337	231	112	59	TN (1)
Haemophilus influenzae,††									
invasive disease (age <5 yrs):									
serotype b	—	9	0	30	22	29	9	19	
nonserotype b	1	56	4	192	199	175	135	135	OK (1)
unknown serotype	1	49	4	182	180	179	217	177	FL (1)
Hansen disease§	—	14	2	79	101	66	87	105	
Hantavirus pulmonary syndrome§	—	1	0	18	32	40	26	24	
Hemolytic uremic syndrome, postdiarrheal§	1	28	3	267	292	288	221	200	CT (1)
Hepatitis C viral, acute	7	170	14	863	845	766	652	720	NY (1), MO (1), KS (1), KY (1), TN (1), WA (2)
HIV infection, pediatric (age <13 years)§§	—	—	3	—	—	—	380	436	
Influenza-associated pediatric mortality§,¶¶	2	46	2	88	77	43	45	—	IL (1), VA (1)
Listeriosis	7	115	10	730	808	884	896	753	PA (1), ID (1), WA (3), CA (2)
Measles***	3	10	2	138	43	55	66	37	PA (3)
Meningococcal disease, invasive†††:									
A, C, Y, and W-135	2	75	8	328	325	318	297	—	PA (1), CO (1)
serogroup B	2	41	3	180	167	193	156	—	MN (1), SC (1)
other serogroup	—	6	1	30	35	32	27	—	
unknown serogroup	7	126	19	606	550	651	765	—	CT (1), VA (1), FL (2), KY (1), TN (1), CA (1)
Mumps	3	77	67	437	800	6,584	314	258	PA (1), AZ (2)
Novel influenza A virus infections	—	1	—	2	4	N	N	N	
Plague	—	—	—	1	7	17	8	3	
Poliomyelitis, paralytic	—	—	—	—	—	—	1	—	
Polio virus infection, nonparalytic§	—	—	—	—	—	N	N	N	
Psittacosis§	—	5	0	11	12	21	16	12	
Q fever total§,§§§:	—	11	2	100	171	169	136	70	
acute	—	8	1	89	—	—	—	—	
chronic	—	3	—	11	—	—	—	—	
Rabies, human	—	—	—	1	1	3	2	7	
Rubella¶¶¶	—	—	0	18	12	11	11	10	
Rubella, congenital syndrome	—	1	0	—	—	1	1	—	
SARS-CoV§,****	—	—	—	—	—	—	—	—	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	5	47	4	146	132	125	129	132	NY (3), MN (2)
Syphilis, congenital (age <1 yr)	—	32	7	348	430	349	329	353	
Tetanus	—	3	0	19	28	41	27	34	
Toxic-shock syndrome (staphylococcal)§	—	17	2	73	92	101	90	95	
Trichinellosis	—	7	0	37	5	15	16	5	
Tularemia	—	4	0	118	137	95	154	134	
Typhoid fever	3	87	6	433	434	353	324	322	FL (1), CA (2)
Vancomycin-intermediate *Staphylococcus aureus*§	3	14	0	46	37	6	2	—	OH (1), MO (1), FL (1)
Vancomycin-resistant *Staphylococcus aureus*§	—	—	0	—	2	1	3	1	
Vibriosis (noncholera *Vibrio* species infections)§	2	35	2	492	549	N	N	N	FL (1), CA (1)
Yellow fever	—	—	—	—	—	—	—	—	

See Table I footnotes on next page.

TABLE I. (*Continued*) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending April 4, 2009 (13th week)*

—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

* Incidence data for reporting year 2008 and 2009 are provisional, whereas data for 2004, 2005, 2006, and 2007 are finalized.

† 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/epo/dphsi/phs/files/5yearweeklyaverage.pdf.

§ Not notifiable in all states. Data from states where the condition is not notifiable 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/epo/dphsi/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.

** The names of the reporting categories changed in 2008 as a result of revisions to the case definitions. Cases reported prior to 2008 were reported in the categories: Ehrlichiosis, human monocytic (analogous to *E. chaffeensis*); Ehrlichiosis, human granulocytic (analogous to *Anaplasma phagocytophilum*), and Ehrlichiosis, unspecified, or other agent (which included cases unable to be clearly placed in other categories, as well as possible cases of *E. ewingii*).

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

§§ Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Updates of pediatric HIV data have been temporarily suspended until upgrading of the national HIV/AIDS surveillance data management system is completed. Data for HIV/AIDS, when available, are displayed in Table IV, which appears quarterly.

¶¶ Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. Forty-five influenza-associated pediatric deaths occurring during the 2008-09 influenza season have been reported.

*** The three measles cases reported for the current week were imported.

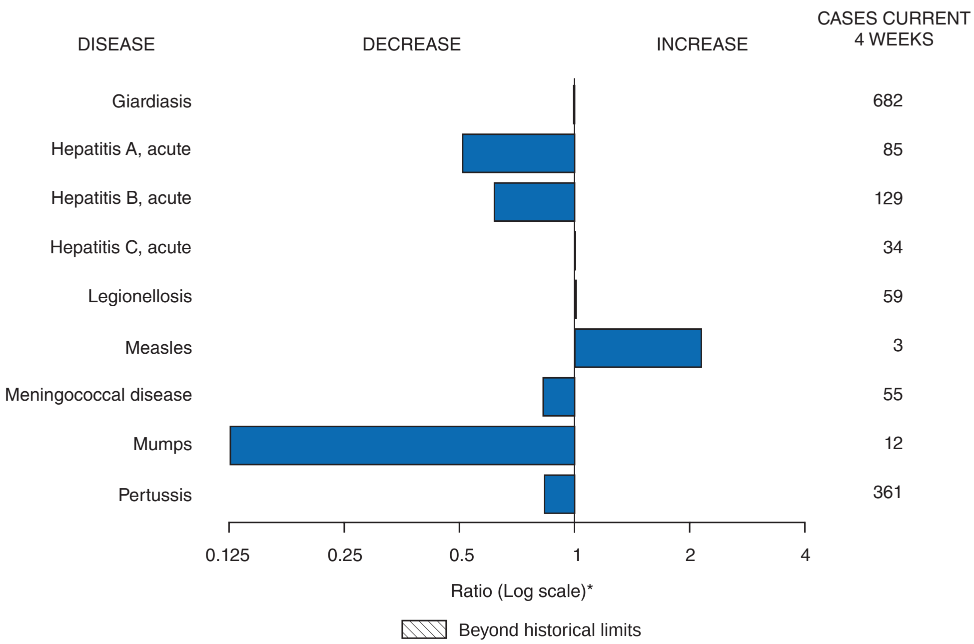
††† Data for meningococcal disease (all serogroups) are available in Table II.

§§§ In 2008, Q fever acute and chronic reporting categories were recognized as a result of revisions to the Q fever case definition. Prior to that time, case counts were not differentiated with respect to acute and chronic Q fever cases.

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

**** Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals April 4, 2009, 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

Patsy A. Hall

Deborah A. Adams, Rosaline Dhara

Willie J. Anderson, Michael S. Wodajo

Lenee Blanton, Pearl C. Sharp

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Chlamydia†					Coccidiodomycosis					Cryptosporidiosis				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 week Med	Previous 52 week Max	Cum 2009	Cum 2008
United States	13,812	21,893	25,375	253,702	277,152	87	126	343	1,860	1,696	44	107	475	867	898
New England	768	732	1,656	9,824	8,647	—	0	0	—	1	3	5	23	55	91
Connecticut	223	226	1,306	2,790	1,854	N	0	0	N	N	—	0	7	7	41
Maine§	44	48	72	667	679	N	0	0	N	N	—	1	6	4	2
Massachusetts	441	323	954	5,135	4,513	N	0	0	N	N	—	2	13	27	23
New Hampshire	5	36	63	256	540	—	0	0	—	1	—	1	4	7	11
Rhode Island§	33	52	208	693	769	—	0	0	—	—	—	0	3	1	2
Vermont§	22	21	53	283	292	N	0	0	N	N	3	1	7	9	12
Mid. Atlantic	3,293	2,833	6,461	36,635	34,215	—	0	0	—	—	8	13	34	107	121
New Jersey	—	397	755	3,671	5,862	N	0	0	N	N	—	0	2	—	10
New York (Upstate)	875	560	4,229	7,512	6,052	N	0	0	N	N	2	4	17	35	27
New York City	2,060	1,105	3,381	15,893	11,466	N	0	0	N	N	—	1	8	18	25
Pennsylvania	358	784	1,074	9,559	10,835	N	0	0	N	N	6	5	15	54	59
E.N. Central	1,614	3,343	4,294	34,087	47,525	1	1	3	8	13	9	26	125	191	192
Illinois	343	1,065	1,315	9,268	14,264	N	0	0	N	N	—	2	13	14	21
Indiana	540	378	713	5,238	5,142	N	0	0	N	N	2	3	13	20	15
Michigan	522	842	1,225	11,475	11,213	—	0	3	2	10	—	5	13	46	44
Ohio	45	797	1,346	4,406	11,575	1	0	2	6	3	1	6	59	58	54
Wisconsin	164	293	439	3,700	5,331	N	0	0	N	N	6	9	46	53	58
W.N. Central	829	1,323	1,550	15,843	16,547	1	0	1	1	—	6	16	68	106	119
Iowa	178	182	256	2,445	2,213	N	0	0	N	N	2	4	30	22	33
Kansas	166	185	401	2,430	2,181	N	0	0	N	N	3	1	8	17	12
Minnesota	—	266	310	2,293	3,760	—	0	0	—	—	—	4	14	16	31
Missouri	357	494	577	6,571	5,977	1	0	1	1	—	1	3	13	24	15
Nebraska§	76	101	254	1,187	1,242	N	0	0	N	N	—	2	8	14	15
North Dakota	—	28	60	156	495	N	0	0	N	N	—	0	2	1	1
South Dakota	52	57	85	761	679	N	0	0	N	N	—	1	9	12	12
S. Atlantic	2,207	3,913	6,326	42,770	47,994	—	0	1	4	2	11	18	47	194	156
Delaware	61	70	163	1,260	903	—	0	1	1	—	—	0	1	—	4
District of Columbia	—	128	229	1,751	1,687	—	0	0	—	—	—	0	2	—	2
Florida	1,165	1,397	1,571	18,386	16,739	N	0	0	N	N	1	8	35	64	76
Georgia	2	617	1,274	3,074	8,716	N	0	0	N	N	7	5	13	85	47
Maryland§	317	441	692	5,363	5,332	—	0	1	3	2	—	1	4	7	2
North Carolina	—	0	460	—	2,352	N	0	0	N	N	2	0	16	26	9
South Carolina§	662	527	3,038	6,259	4,495	N	0	0	N	N	1	1	4	4	6
Virginia§	—	606	885	5,779	6,872	N	0	0	N	N	—	1	4	6	6
West Virginia	—	61	102	898	898	N	0	0	N	N	—	0	3	2	4
E.S. Central	1,403	1,667	2,150	21,878	20,072	—	0	0	—	—	—	3	9	25	25
Alabama§	—	467	553	4,539	6,373	N	0	0	N	N	—	1	6	5	13
Kentucky	179	253	380	3,149	2,550	N	0	0	N	N	—	0	4	6	4
Mississippi	584	413	841	6,456	4,328	N	0	0	N	N	—	0	2	4	3
Tennessee§	640	546	798	7,734	6,821	N	0	0	N	N	—	1	5	10	5
W.S. Central	1,598	2,831	3,691	34,751	36,254	—	0	1	—	1	—	8	256	37	42
Arkansas§	204	275	392	3,824	3,715	N	0	0	N	N	—	1	7	3	2
Louisiana	—	425	822	3,782	4,469	—	0	1	—	1	—	1	5	5	8
Oklahoma	80	188	407	1,484	3,067	N	0	0	N	N	—	1	16	10	11
Texas§	1,314	1,931	2,496	25,661	25,003	N	0	0	N	N	—	5	250	19	21
Mountain	657	1,259	1,984	13,896	18,373	60	89	181	1,289	1,156	3	8	39	55	81
Arizona	274	475	645	4,836	5,955	58	87	179	1,264	1,121	1	1	9	7	11
Colorado	—	159	588	1,446	4,426	N	0	0	N	N	—	1	12	17	18
Idaho§	—	67	314	833	1,062	N	0	0	N	N	2	1	5	8	14
Montana§	17	59	87	726	765	N	0	0	N	N	—	1	3	3	9
Nevada§	187	175	415	2,701	2,543	2	1	7	20	16	—	0	4	5	3
New Mexico§	139	150	455	1,985	1,811	—	0	2	1	11	—	2	24	9	13
Utah	2	101	252	825	1,511	—	0	1	4	8	—	0	6	1	8
Wyoming§	38	33	97	544	300	—	0	1	—	—	—	0	2	5	5
Pacific	1,443	3,665	4,461	44,018	47,525	25	37	172	558	523	4	8	30	97	71
Alaska	47	88	200	1,068	1,160	N	0	0	N	N	—	0	1	1	1
California	1,353	2,874	3,308	35,668	36,713	25	37	172	558	523	1	5	14	54	46
Hawaii	43	112	248	1,293	1,385	N	0	0	N	N	—	0	1	—	1
Oregon§	—	186	631	2,373	2,630	N	0	0	N	N	—	1	5	34	14
Washington	—	375	502	3,616	5,637	N	0	0	N	N	3	1	17	8	9
American Samoa	—	0	14	—	37	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	5	24	—	25	—	0	0	—	—	—	0	0	—	—
Puerto Rico	134	146	333	1,979	1,299	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	10	22	—	188	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional. Data for HIV/AIDS, AIDS, and TB, when available, are displayed in Table IV, which appears quarterly.
† Chlamydia refers to genital infections caused by *Chlamydia trachomatis*.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Giardiasis					Gonorrhea					*Haemophilus influenzae*, invasive All ages, all serotypes†				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	155	311	624	3,275	3,511	2,984	5,868	6,843	58,656	78,391	26	47	112	640	841
New England	7	28	65	265	330	89	101	301	1,238	1,151	1	3	17	39	43
Connecticut	—	6	14	53	74	34	51	275	545	386	—	0	11	10	1
Maine§	7	3	12	49	29	4	2	7	34	23	1	0	2	5	4
Massachusetts	—	11	27	102	143	42	38	113	542	617	—	1	5	20	30
New Hampshire	—	3	11	19	27	—	2	6	26	26	—	0	2	2	5
Rhode Island§	—	1	8	11	25	8	5	16	80	89	—	0	7	1	—
Vermont§	—	3	15	31	32	1	1	3	11	10	—	0	3	1	3
Mid. Atlantic	34	59	108	578	668	548	607	1,077	7,086	7,639	3	9	23	120	144
New Jersey	—	0	14	—	117	—	89	146	745	1,497	—	1	5	10	29
New York (Upstate)	28	23	73	265	206	146	115	621	1,376	1,397	2	3	19	38	34
New York City	4	16	30	167	181	345	205	584	2,840	1,943	—	1	6	13	25
Pennsylvania	2	15	46	146	164	57	201	267	2,125	2,802	1	4	10	59	56
E.N. Central	21	49	88	461	531	493	1,183	1,579	10,439	17,092	—	7	18	69	131
Illinois	—	11	32	62	138	122	364	480	2,670	4,769	—	2	7	20	44
Indiana	N	0	7	N	N	159	146	254	1,724	2,112	—	1	13	10	25
Michigan	—	12	22	125	115	144	303	657	3,671	4,240	—	1	2	6	7
Ohio	14	17	31	187	195	16	267	531	1,335	4,414	—	2	6	30	45
Wisconsin	7	9	20	87	83	52	79	141	1,039	1,557	—	0	2	3	10
W.N. Central	8	26	143	257	346	168	317	391	3,447	4,159	4	3	14	46	57
Iowa	—	6	18	60	61	22	28	53	327	386	—	0	1	—	1
Kansas	2	3	11	28	25	42	44	83	617	525	—	0	4	6	4
Minnesota	—	0	106	2	115	—	55	78	379	858	4	0	10	11	11
Missouri	4	8	22	113	89	79	147	193	1,679	1,946	—	1	4	19	30
Nebraska§	2	4	10	34	34	17	27	50	344	350	—	0	2	7	7
North Dakota	—	0	4	3	8	—	2	7	6	33	—	0	3	3	4
South Dakota	—	2	11	17	14	8	8	20	95	61	—	0	0	—	—
S. Atlantic	43	60	108	836	546	622	1,279	1,875	11,973	17,082	13	12	24	201	234
Delaware	—	1	3	5	11	4	17	35	214	316	—	0	2	1	2
District of Columbia	—	0	5	—	10	—	57	101	727	539	—	0	2	—	4
Florida	23	31	57	466	253	321	430	518	5,242	5,900	9	4	9	76	56
Georgia	2	9	63	186	125	5	257	484	1,005	3,251	3	2	9	44	57
Maryland§	5	5	10	57	50	124	117	210	1,459	1,534	1	1	5	27	42
North Carolina	N	0	0	N	N	—	0	203	—	1,269	—	1	6	19	23
South Carolina§	7	2	6	25	26	168	178	829	1,852	1,865	—	1	7	12	14
Virginia§	3	8	31	86	53	—	177	321	1,346	2,191	—	1	5	11	29
West Virginia	3	1	5	11	18	—	12	26	128	217	—	0	3	11	7
E.S. Central	—	8	22	67	99	366	550	771	6,449	7,267	—	3	6	29	46
Alabama§	—	4	12	33	58	—	175	216	1,426	2,603	—	0	2	6	5
Kentucky	N	0	0	N	N	47	88	153	898	970	—	0	3	2	1
Mississippi	N	0	0	N	N	164	140	253	1,984	1,672	—	0	1	—	8
Tennessee§	—	4	13	34	41	155	165	301	2,141	2,022	—	2	5	21	32
W.S. Central	4	8	21	62	56	406	949	1,300	9,840	12,719	2	2	17	27	30
Arkansas§	1	2	8	17	23	63	84	167	1,110	1,217	1	0	2	3	—
Louisiana	1	2	10	27	20	—	161	317	1,260	2,306	—	0	1	4	2
Oklahoma	2	3	11	18	13	19	70	142	529	1,207	1	1	16	20	25
Texas§	N	0	0	N	N	324	605	728	6,941	7,989	—	0	1	—	3
Mountain	8	27	62	221	302	92	196	339	1,575	2,837	3	5	11	77	122
Arizona	4	3	8	34	30	20	63	83	540	899	—	2	6	35	55
Colorado	—	10	27	77	106	—	55	101	193	725	2	1	5	19	23
Idaho§	—	4	14	24	30	—	3	13	24	52	—	0	4	1	1
Montana§	1	2	9	23	19	3	2	6	22	24	—	0	1	1	1
Nevada§	1	1	8	9	29	36	34	129	503	665	1	0	2	7	6
New Mexico§	—	1	8	10	29	32	23	48	229	309	—	0	2	6	16
Utah	—	7	18	32	49	—	6	19	47	149	—	0	2	8	20
Wyoming§	2	0	3	12	10	1	2	9	17	14	—	0	2	—	—
Pacific	30	56	152	528	633	200	576	662	6,609	8,445	—	2	6	32	34
Alaska	—	2	10	17	20	10	12	24	172	121	—	0	2	3	4
California	22	35	59	387	464	184	475	577	5,561	6,918	—	0	3	5	11
Hawaii	—	0	4	2	7	6	12	21	132	144	—	0	2	9	4
Oregon§	3	7	18	66	109	—	23	48	293	365	—	1	4	14	15
Washington	5	8	99	56	33	—	51	82	451	897	—	0	2	1	—
American Samoa	—	0	0	—	—	—	0	1	—	1	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	1	15	—	15	—	0	0	—	—
Puerto Rico	—	3	15	23	32	5	5	22	48	63	—	0	1	—	—
U.S. Virgin Islands	—	0	0	—	—	—	2	6	—	29	N	0	0	N	N

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Data for *H. influenzae* (age <5 yrs for serotype b, nonserotype b, and unknown serotype) are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Hepatitis (viral, acute), by type† A: Current week	A: Previous 52 weeks Med	A: Previous 52 weeks Max	A: Cum 2009	A: Cum 2008	B: Current week	B: Previous 52 weeks Med	B: Previous 52 weeks Max	B: Cum 2009	B: Cum 2008	Legionellosis: Current week	Legionellosis: Previous 52 weeks Med	Legionellosis: Previous 52 weeks Max	Legionellosis: Cum 2009	Legionellosis: Cum 2008
United States	27	44	76	405	638	34	71	147	755	894	13	49	148	346	460
New England	1	2	8	23	39	—	1	4	7	23	—	2	18	12	19
Connecticut	—	0	4	7	5	—	0	2	3	9	—	1	5	5	3
Maine§	—	0	5	1	3	—	0	2	3	4	—	0	2	—	—
Massachusetts	—	1	3	11	23	—	0	2	—	7	—	1	7	5	6
New Hampshire	—	0	2	1	1	—	0	2	1	1	—	0	5	—	4
Rhode Island§	1	0	2	3	7	—	0	1	—	1	—	0	14	1	3
Vermont§	—	0	1	—	—	—	0	1	—	1	—	0	1	1	3
Mid. Atlantic	3	5	10	49	87	2	7	15	53	132	2	14	59	85	102
New Jersey	—	1	3	5	20	—	1	5	3	52	—	1	8	6	12
New York (Upstate)	3	1	4	12	16	2	1	10	17	11	2	5	21	32	22
New York City	—	2	6	14	25	—	1	6	7	22	—	1	12	3	13
Pennsylvania	—	1	4	18	26	—	2	8	26	47	—	6	33	44	55
E.N. Central	—	6	16	46	90	3	9	18	93	111	1	8	41	65	120
Illinois	—	2	10	9	28	—	2	7	12	28	—	1	13	—	20
Indiana	—	0	4	3	3	1	1	7	12	5	—	1	6	6	6
Michigan	—	2	5	15	42	—	3	8	30	41	—	2	16	14	32
Ohio	—	1	4	14	8	2	2	14	39	31	1	3	18	42	59
Wisconsin	—	0	3	5	9	—	0	0	—	6	—	0	3	3	3
W.N. Central	2	3	15	22	73	2	2	15	42	15	—	2	8	4	23
Iowa	—	1	7	—	29	—	0	3	6	6	—	0	2	2	5
Kansas	1	0	3	2	5	—	0	3	—	3	—	0	1	1	1
Minnesota	—	0	12	5	9	1	0	11	6	—	—	0	4	—	2
Missouri	—	1	3	9	8	1	1	5	22	5	—	1	7	—	8
Nebraska§	1	0	5	6	21	—	0	3	7	1	—	0	3	—	6
North Dakota	—	0	1	—	—	—	0	1	—	—	—	0	1	1	—
South Dakota	—	0	1	—	1	—	0	1	1	—	—	0	1	—	1
S. Atlantic	12	7	16	109	81	18	18	34	271	228	8	9	22	88	86
Delaware	—	0	1	—	1	—	0	2	8	7	—	0	2	—	1
District of Columbia	U	0	0	U	U	U	0	0	U	U	—	0	2	—	3
Florida	5	3	8	59	35	8	7	11	92	80	6	3	7	40	38
Georgia	1	1	4	15	12	1	3	8	34	35	1	1	5	17	9
Maryland§	1	1	4	13	11	1	2	5	27	25	—	2	10	14	18
North Carolina	3	0	9	12	9	7	0	19	86	24	1	0	7	13	5
South Carolina§	—	0	3	5	2	—	1	4	3	22	—	0	2	—	2
Virginia§	2	1	6	5	8	1	2	10	12	20	—	1	5	4	7
West Virginia	—	0	1	—	3	—	1	6	9	15	—	0	3	—	3
E.S. Central	—	1	9	8	8	2	8	13	72	95	—	2	10	18	23
Alabama§	—	0	2	1	1	—	2	7	20	26	—	0	2	2	2
Kentucky	—	0	3	1	3	1	2	7	17	26	—	1	4	8	13
Mississippi	—	0	2	4	—	—	1	3	5	12	—	0	1	—	—
Tennessee§	—	0	6	2	4	1	3	8	30	31	—	0	5	8	8
W.S. Central	—	4	15	32	56	1	12	56	110	175	1	2	17	12	10
Arkansas§	—	0	1	1	1	—	0	4	2	7	—	0	2	—	—
Louisiana	—	0	2	2	3	—	1	4	9	23	—	0	2	1	1
Oklahoma	—	0	5	1	3	1	2	10	24	15	—	0	6	1	—
Texas§	—	4	11	28	49	—	8	45	75	130	1	1	16	10	9
Mountain	6	3	12	31	53	—	3	11	30	39	—	1	8	21	26
Arizona	6	1	11	17	18	—	1	5	12	17	—	0	2	8	7
Colorado	—	0	2	4	11	—	0	3	6	5	—	0	2	1	3
Idaho§	—	0	3	—	8	—	0	2	1	—	—	0	1	—	1
Montana§	—	0	1	2	—	—	0	1	—	—	—	0	2	3	2
Nevada§	—	0	3	4	2	—	1	3	6	11	—	0	2	5	3
New Mexico§	—	0	2	1	9	—	0	2	3	5	—	0	2	—	3
Utah	—	0	2	3	2	—	0	3	2	1	—	0	2	4	7
Wyoming§	—	0	0	—	3	—	0	1	—	—	—	0	0	—	—
Pacific	3	8	25	85	151	6	7	42	77	76	1	4	10	41	51
Alaska	—	0	1	1	1	—	0	1	1	2	—	0	1	2	—
California	1	7	25	70	120	4	5	28	61	54	—	3	8	32	42
Hawaii	—	0	2	1	3	—	0	1	1	3	—	0	1	1	2
Oregon§	—	0	2	6	12	1	1	3	7	9	—	0	2	3	4
Washington	2	0	7	7	15	1	0	14	7	8	1	0	4	3	3
American Samoa	—	0	0	—	—	—	0	0	—	—	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	4	5	7	—	0	5	1	13	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Data for acute hepatitis C, viral are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Lyme disease					Malaria					Meningococcal disease, invasive† All serotypes				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	95	488	1,675	1,413	1,904	13	23	47	210	168	11	19	41	248	402
New England	3	80	537	156	339	—	1	6	7	7	1	0	4	11	13
Connecticut	—	0	0	—	—	—	0	3	—	—	1	0	0	1	1
Maine§	3	5	73	29	37	—	0	0	—	1	—	0	1	1	1
Massachusetts	—	38	362	46	232	—	0	4	6	4	—	0	3	6	11
New Hampshire	—	17	143	55	62	—	0	2	—	1	—	0	1	1	—
Rhode Island§	—	0	5	5	1	—	0	1	—	1	—	0	1	1	—
Vermont§	—	4	41	21	7	—	0	1	1	—	—	0	1	1	—
Mid. Atlantic	54	254	1,299	692	996	3	4	14	41	37	1	2	6	22	43
New Jersey	—	29	211	138	275	—	0	0	—	—	—	0	1	1	7
New York (Upstate)	50	99	1,247	305	111	3	1	10	14	4	—	0	2	4	14
New York City	—	4	36	—	40	—	3	10	21	27	—	0	2	3	5
Pennsylvania	4	97	519	249	570	—	1	3	6	6	1	1	4	14	17
E.N. Central	—	11	147	26	64	1	3	7	26	33	—	3	8	41	66
Illinois	—	0	13	—	3	—	1	5	8	17	—	1	6	6	26
Indiana	—	0	8	1	—	—	0	2	5	1	—	0	4	9	9
Michigan	—	1	10	4	4	—	0	2	4	5	—	0	3	7	11
Ohio	—	0	6	2	3	1	0	2	9	9	—	1	4	16	13
Wisconsin	—	9	129	19	54	—	0	3	—	1	—	0	2	3	7
W.N. Central	7	9	236	23	9	—	1	10	6	6	1	1	7	21	40
Iowa	—	1	9	4	8	—	0	3	1	—	—	0	2	1	8
Kansas	—	0	4	2	1	—	0	2	1	—	—	0	2	5	1
Minnesota	7	5	226	16	—	—	0	8	1	1	1	0	4	5	15
Missouri	—	0	1	—	—	—	0	3	3	1	—	0	2	8	11
Nebraska§	—	0	2	—	—	—	0	1	—	4	—	0	1	2	4
North Dakota	—	0	10	—	—	—	0	0	—	—	—	0	1	—	—
South Dakota	—	0	1	1	—	—	0	0	—	—	—	0	1	—	1
S. Atlantic	25	75	224	456	442	7	6	15	89	44	4	3	9	48	53
Delaware	1	12	36	79	107	—	0	1	1	—	—	0	1	—	—
District of Columbia	—	2	11	—	23	—	0	2	—	—	—	0	0	—	—
Florida	—	2	10	12	8	2	1	7	25	14	2	1	4	24	19
Georgia	—	0	6	13	—	1	1	5	15	10	—	0	2	6	5
Maryland§	7	29	162	250	249	3	1	7	27	16	—	0	3	1	4
North Carolina	6	0	5	14	2	1	0	7	13	2	—	0	3	9	3
South Carolina§	—	0	2	3	4	—	0	1	1	1	1	0	2	3	10
Virginia§	11	15	61	76	45	—	1	3	6	1	1	0	2	4	11
West Virginia	—	1	11	9	4	—	0	1	1	—	—	0	1	1	1
E.S. Central	1	1	5	4	1	—	0	2	5	2	2	0	6	8	21
Alabama§	—	0	2	—	—	—	0	1	1	1	—	0	2	—	1
Kentucky	—	0	2	—	—	—	0	1	—	1	1	0	1	2	4
Mississippi	—	0	1	—	—	—	0	1	—	—	—	0	2	1	5
Tennessee§	1	0	3	4	1	—	0	2	4	—	1	0	3	5	11
W.S. Central	—	2	21	4	9	—	1	10	4	9	—	2	10	21	41
Arkansas§	—	0	0	—	—	—	0	0	—	—	—	0	2	4	4
Louisiana	—	0	1	—	—	—	0	1	—	—	—	0	3	7	12
Oklahoma	—	0	1	—	—	—	0	2	—	1	—	0	3	2	6
Texas§	—	2	21	4	9	—	1	10	4	8	—	1	9	8	19
Mountain	2	1	14	7	5	—	0	3	2	8	1	1	4	21	23
Arizona	—	0	2	1	2	—	0	2	—	2	—	0	2	4	2
Colorado	—	0	1	1	1	—	0	1	1	3	1	0	2	7	5
Idaho§	1	0	1	2	1	—	0	1	—	—	—	0	1	3	2
Montana§	1	0	14	1	—	—	0	0	—	—	—	0	1	2	1
Nevada§	—	0	2	2	—	—	0	1	—	3	—	0	1	2	5
New Mexico§	—	0	2	—	1	—	0	1	—	—	—	0	1	1	3
Utah	—	0	1	—	—	—	0	1	1	—	—	0	1	1	4
Wyoming§	—	0	1	—	—	—	0	0	—	—	—	0	1	1	1
Pacific	3	4	19	45	39	2	3	11	30	22	1	4	13	55	102
Alaska	—	0	2	1	—	—	0	2	1	—	—	0	2	2	—
California	3	3	8	38	34	2	2	8	20	17	1	2	8	27	84
Hawaii	N	0	0	N	N	—	0	1	1	1	—	0	1	1	1
Oregon§	—	1	3	6	5	—	0	2	4	3	—	1	6	19	9
Washington	—	0	12	—	—	—	0	7	4	1	—	0	5	6	8
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	2	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	—	0	1	1	—	—	0	1	—	2
U.S. Virgin Islands	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Data for meningococcal disease, invasive caused by serogroups A, C, Y, and W-135; serogroup B; other serogroup; and unknown serogroup are available in Table I.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Pertussis					Rabies, animal					Rocky Mountain spotted fever				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	101	213	1,487	2,350	1,816	26	91	162	576	962	23	40	145	167	55
New England	—	16	35	129	263	8	8	21	65	69	—	0	2	1	1
Connecticut	—	0	4	—	22	4	3	17	26	37	—	0	0	—	—
Maine†	—	1	7	26	12	3	1	5	11	8	—	0	1	1	—
Massachusetts	—	13	30	84	203	—	0	0	—	—	—	0	1	—	1
New Hampshire	—	1	4	10	8	—	1	8	5	7	—	0	1	—	—
Rhode Island†	—	0	8	3	13	—	1	3	7	6	—	0	2	—	—
Vermont†	—	0	2	6	5	1	1	6	16	11	—	0	0	—	—
Mid. Atlantic	5	18	52	184	200	8	31	67	92	270	—	1	30	3	9
New Jersey	—	1	6	17	14	—	0	0	—	—	—	0	2	—	2
New York (Upstate)	3	6	41	40	58	8	10	20	72	73	—	0	29	—	—
New York City	—	0	20	17	29	—	0	2	—	5	—	0	2	3	4
Pennsylvania	2	9	34	110	99	—	21	52	20	192	—	0	2	—	3
E.N. Central	2	36	174	528	458	—	3	29	7	2	—	1	15	3	1
Illinois	—	12	45	119	41	—	1	21	2	1	—	1	11	1	1
Indiana	—	2	96	32	12	—	0	2	—	—	—	0	3	—	—
Michigan	2	7	21	131	43	—	1	9	5	—	—	0	1	1	—
Ohio	—	10	57	240	348	—	1	7	—	1	—	0	4	1	—
Wisconsin	—	2	7	6	14	N	0	0	N	N	—	0	1	—	—
W.N. Central	58	26	839	480	148	4	5	17	45	26	—	4	33	6	2
Iowa	—	4	21	34	26	—	0	5	—	3	—	0	2	—	—
Kansas	4	2	12	37	18	2	1	9	26	7	—	0	0	—	—
Minnesota	49	2	781	49	14	—	0	10	5	8	—	0	0	—	—
Missouri	3	9	51	300	76	1	1	8	6	—	—	4	32	6	2
Nebraska†	2	3	32	52	11	—	0	0	—	—	—	0	4	—	—
North Dakota	—	0	18	2	—	—	0	9	3	3	—	0	0	—	—
South Dakota	—	0	10	6	3	1	0	2	5	5	—	0	1	—	—
S. Atlantic	6	20	71	316	152	2	25	78	290	509	21	16	71	143	26
Delaware	—	0	3	4	1	—	0	0	—	—	—	0	5	1	1
District of Columbia	—	0	1	—	2	—	0	0	—	—	—	0	2	—	—
Florida	6	7	20	106	30	—	0	14	41	139	—	0	3	1	1
Georgia	—	1	9	4	8	—	0	47	88	96	1	1	8	5	4
Maryland†	—	2	9	20	24	—	7	17	60	107	1	1	7	10	6
North Carolina	—	0	65	119	39	N	2	4	N	N	19	8	55	113	11
South Carolina†	—	2	11	32	19	—	0	0	—	—	—	1	9	4	—
Virginia†	—	3	24	28	27	—	10	24	85	141	—	2	15	8	1
West Virginia	—	0	2	3	2	2	1	6	16	26	—	0	1	1	2
E.S. Central	2	9	33	141	57	2	3	7	17	36	—	4	23	7	7
Alabama†	—	1	5	22	17	—	0	0	—	—	—	1	8	4	4
Kentucky	—	4	15	76	7	2	1	4	17	4	—	0	1	—	—
Mississippi	—	2	5	16	24	—	0	1	—	1	—	0	3	1	1
Tennessee†	2	2	14	27	9	—	2	6	—	31	—	2	19	2	2
W.S. Central	4	33	276	248	125	—	1	11	6	13	2	2	41	3	6
Arkansas†	—	1	20	15	16	—	0	6	2	11	—	0	14	1	—
Louisiana	—	2	7	20	2	—	0	0	—	—	—	0	1	—	2
Oklahoma	2	0	29	9	1	—	0	10	4	1	1	0	26	1	—
Texas†	2	28	232	204	106	—	0	1	—	1	1	1	6	1	4
Mountain	5	14	31	183	253	2	2	9	24	11	—	1	3	1	3
Arizona	2	2	10	25	67	N	0	0	N	N	—	0	2	—	1
Colorado	1	3	12	64	54	—	0	0	—	—	—	0	1	—	—
Idaho†	2	1	5	17	6	—	0	0	—	—	—	0	1	—	—
Montana†	—	0	8	5	46	—	0	4	10	—	—	0	1	—	—
Nevada†	—	0	7	6	4	—	0	5	—	—	—	0	2	—	—
New Mexico†	—	1	10	18	9	—	0	3	6	9	—	0	1	—	1
Utah	—	4	19	48	63	—	0	6	—	—	—	0	1	1	1
Wyoming†	—	0	2	—	4	2	0	4	8	2	—	0	2	—	—
Pacific	19	25	81	141	160	—	4	13	30	26	—	0	1	—	—
Alaska	—	3	21	24	22	—	0	2	6	10	N	0	0	N	N
California	—	7	23	13	53	—	3	12	24	16	—	0	1	—	—
Hawaii	1	0	3	6	3	—	0	0	—	—	N	0	0	N	N
Oregon†	1	3	16	45	38	—	0	2	—	—	—	0	1	—	—
Washington	17	6	77	53	44	—	0	0	—	—	—	0	0	—	—
American Samoa	—	0	0	—	—	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	N	0	0	N	N
Puerto Rico	—	0	0	—	—	—	1	5	10	11	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N	N	0	0	N	N

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Salmonellosis					Shiga toxin-producing *E. coli* (STEC)†					Shigellosis				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	333	950	2,145	6,680	6,866	42	84	222	520	776	131	443	815	3,334	3,302
New England	6	31	115	339	750	—	4	14	27	75	—	3	10	43	73
Connecticut	—	0	88	88	491	—	0	10	10	47	—	0	4	4	40
Maine§	—	2	8	18	27	—	0	3	—	2	—	0	6	2	1
Massachusetts	—	19	51	167	181	—	1	11	9	18	—	3	9	31	26
New Hampshire	2	3	10	29	20	—	1	3	7	6	—	0	1	1	1
Rhode Island§	3	2	9	25	20	—	0	3	—	—	—	0	1	4	4
Vermont§	1	1	7	12	11	—	0	6	1	2	—	0	2	1	1
Mid. Atlantic	37	91	177	718	836	2	6	49	39	234	14	51	96	548	339
New Jersey	—	9	29	58	200	—	0	3	3	9	—	16	38	154	82
New York (Upstate)	24	27	64	204	172	2	3	48	23	202	—	9	35	43	76
New York City	1	22	54	184	215	—	1	5	10	9	—	12	35	106	153
Pennsylvania	12	28	78	272	249	—	0	8	3	14	14	8	28	245	28
E.N. Central	29	98	194	793	762	2	11	75	64	83	27	82	128	703	686
Illinois	—	27	72	165	239	—	1	10	7	16	—	17	35	117	226
Indiana	—	9	53	31	46	—	1	14	8	4	—	7	39	9	208
Michigan	3	18	38	170	151	1	2	43	16	19	—	5	24	72	15
Ohio	24	27	65	290	199	1	3	17	19	15	25	42	80	432	162
Wisconsin	2	15	50	137	127	—	3	20	14	29	2	7	33	73	75
W.N. Central	22	53	148	562	430	7	12	59	64	59	6	15	39	110	196
Iowa	7	9	16	69	70	2	2	21	15	16	1	4	12	28	17
Kansas	—	7	29	57	42	2	1	7	4	3	2	2	5	40	2
Minnesota	4	11	69	118	123	—	2	21	18	9	—	4	25	15	34
Missouri	6	13	48	96	115	1	2	11	17	22	3	3	14	20	78
Nebraska§	5	5	41	146	48	2	1	30	9	5	—	0	3	5	—
North Dakota	—	0	10	9	6	—	0	1	—	—	—	0	3	1	19
South Dakota	—	3	22	67	26	—	1	4	1	4	—	0	5	1	46
S. Atlantic	108	250	456	1,906	1,687	11	14	51	126	118	25	55	100	519	726
Delaware	—	2	9	7	20	—	0	2	2	2	—	0	1	5	1
District of Columbia	—	0	4	—	13	—	0	1	—	2	—	0	3	—	4
Florida	66	97	174	793	858	6	2	11	41	41	5	13	34	110	245
Georgia	15	43	86	297	197	—	1	7	9	5	5	17	48	121	281
Maryland§	3	14	36	129	111	2	2	9	19	14	6	3	12	78	17
North Carolina	17	28	106	386	178	2	2	21	41	12	6	4	27	103	25
South Carolina§	3	18	55	126	148	—	0	4	2	9	2	7	32	41	135
Virginia§	4	20	89	140	117	1	3	27	11	25	1	5	59	56	16
West Virginia	—	3	8	28	45	—	0	3	1	8	—	0	3	5	2
E.S. Central	5	60	140	349	408	2	5	12	27	49	5	33	67	185	436
Alabama§	—	16	49	98	141	—	1	3	4	25	—	6	18	38	117
Kentucky	1	10	18	78	68	—	1	7	5	8	—	3	24	23	44
Mississippi	—	14	57	59	84	—	0	2	1	2	—	2	18	5	136
Tennessee§	4	15	62	114	115	2	2	6	17	14	5	19	48	119	139
W.S. Central	22	139	1,118	377	489	5	6	54	33	61	31	98	523	700	452
Arkansas§	6	11	40	74	61	1	1	3	5	6	3	11	27	56	48
Louisiana	1	17	50	65	90	—	0	1	—	1	—	11	26	42	90
Oklahoma	15	15	36	90	62	—	1	19	4	2	—	3	43	33	24
Texas§	—	93	1,057	148	276	4	5	48	24	52	28	65	463	569	290
Mountain	23	59	115	480	585	2	11	39	72	69	8	25	52	248	148
Arizona	7	20	44	203	161	2	1	5	8	16	7	14	33	180	63
Colorado	6	12	29	110	188	—	4	18	44	13	1	2	11	24	18
Idaho§	1	3	15	29	28	—	2	15	6	19	—	0	2	—	2
Montana§	4	2	8	27	13	—	0	3	2	7	—	0	2	2	—
Nevada§	3	3	14	44	54	—	0	3	1	3	—	3	13	22	46
New Mexico§	—	7	32	18	60	—	1	6	6	8	—	2	12	18	13
Utah	1	6	19	43	64	—	1	9	4	2	—	1	3	2	3
Wyoming§	1	1	4	6	17	—	0	1	1	1	—	0	1	—	3
Pacific	81	114	530	1,156	919	11	9	60	68	28	15	31	83	278	246
Alaska	—	1	4	10	12	—	0	1	—	1	—	0	1	2	—
California	63	84	516	874	728	3	6	39	51	21	13	27	75	221	211
Hawaii	2	5	15	66	46	—	0	2	1	2	—	1	3	5	11
Oregon§	2	7	20	83	67	—	1	8	—	3	—	1	10	17	13
Washington	14	12	155	123	66	8	2	44	16	1	2	2	28	33	11
American Samoa	—	0	1	—	1	—	0	0	—	—	—	0	2	3	1
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	2	—	3	—	0	0	—	—	—	0	3	—	5
Puerto Rico	—	14	40	58	132	—	0	0	—	—	—	0	4	—	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 notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Includes *E. coli* O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin-positive, not serogrouped.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	Streptococcal diseases, invasive, group A					*Streptococcus pneumoniae,* invasive disease, nondrug resistant† Age <5 years				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	118	99	214	1,590	1,790	41	35	90	481	561
New England	—	5	31	93	112	—	1	12	13	31
Connecticut	—	0	26	23	9	—	0	11	—	—
Maine§	—	0	3	6	10	—	0	1	—	1
Massachusetts	—	3	7	39	74	—	1	3	9	26
New Hampshire	—	1	4	15	10	—	0	1	2	4
Rhode Island§	—	0	8	4	3	—	0	2	—	—
Vermont§	—	0	3	6	6	—	0	1	2	—
Mid. Atlantic	17	18	34	290	372	4	3	25	58	64
New Jersey	—	1	9	2	76	—	1	4	10	20
New York (Upstate)	13	6	23	104	98	4	2	19	37	25
New York City	—	4	12	60	77	—	0	23	11	19
Pennsylvania	4	7	16	124	121	N	0	2	N	N
E.N. Central	10	16	40	291	355	2	6	11	70	104
Illinois	—	4	11	69	111	—	1	5	9	31
Indiana	—	3	19	41	42	—	0	5	4	12
Michigan	—	3	9	49	66	1	1	5	21	28
Ohio	7	4	14	99	90	—	1	5	28	16
Wisconsin	3	1	10	33	46	1	0	2	8	17
W.N. Central	22	5	37	136	142	10	2	11	43	35
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	1	0	8	18	20	N	0	1	N	N
Minnesota	18	0	34	52	55	6	0	9	15	13
Missouri	2	1	8	39	36	4	1	3	19	16
Nebraska§	1	1	3	17	15	—	0	1	2	2
North Dakota	—	0	2	2	7	—	0	3	3	1
South Dakota	—	0	2	8	9	—	0	2	4	3
S. Atlantic	44	21	33	370	362	8	6	14	100	115
Delaware	—	0	1	6	5	—	0	0	—	—
District of Columbia	—	0	4	—	8	N	0	0	N	N
Florida	7	6	12	92	79	2	1	3	20	16
Georgia	6	5	14	89	75	1	1	6	33	31
Maryland§	6	3	10	53	71	2	1	3	21	26
North Carolina	13	2	8	42	43	N	0	0	N	N
South Carolina§	3	1	5	24	24	3	1	6	21	19
Virginia§	8	3	10	53	42	—	0	3	1	20
West Virginia	1	0	3	11	15	—	0	2	4	3
E.S. Central	6	4	9	74	54	1	2	6	17	29
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	—	1	5	14	13	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	3	—	7
Tennessee§	6	3	7	60	41	1	1	6	17	22
W.S. Central	14	10	58	156	142	14	6	36	91	71
Arkansas§	2	0	2	6	2	1	0	3	9	3
Louisiana	—	0	2	5	8	—	0	3	12	2
Oklahoma	4	2	13	60	41	2	1	7	16	25
Texas§	8	6	45	85	91	11	4	27	54	41
Mountain	5	9	23	138	210	1	4	15	78	96
Arizona	4	3	8	39	68	—	2	9	45	49
Colorado	1	3	8	56	59	1	1	4	18	19
Idaho§	—	0	2	3	8	—	0	1	2	1
Montana§	N	0	0	N	N	N	0	0	N	N
Nevada§	—	0	1	2	5	—	0	1	—	1
New Mexico§	—	1	6	21	50	—	0	2	5	11
Utah	—	1	6	16	17	—	0	4	8	15
Wyoming§	—	0	1	1	3	—	0	1	—	—
Pacific	—	3	8	42	41	1	1	5	11	16
Alaska	—	0	4	5	10	1	0	4	8	10
California	N	0	0	N	N	N	0	0	N	N
Hawaii	—	3	8	37	31	—	0	2	3	6
Oregon§	N	0	0	N	N	N	0	0	N	N
Washington	N	0	0	N	N	N	0	0	N	N
American Samoa	—	0	12	—	—	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Includes cases of invasive pneumococcal disease, in children aged <5 years, caused by *S. pneumoniae*, which is susceptible or for which susceptibility testing is not available (NNDSS event code 11717).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

Reporting area	*Streptococcus pneumoniae*, invasive disease, drug resistant† — All ages: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Aged <5 years: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Syphilis, primary and secondary: Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	65	57	103	975	1,094	4	8	22	134	130	116	255	384	2,830	3,025
New England	1	1	48	17	19	—	0	5	—	1	1	5	15	85	74
Connecticut	—	0	48	—	—	—	0	5	—	—	—	1	5	21	3
Maine§	—	0	2	3	7	—	0	1	—	—	—	0	2	1	2
Massachusetts	—	0	0	—	—	—	0	0	—	—	1	4	11	52	60
New Hampshire	—	0	3	5	—	—	0	0	—	—	—	0	2	7	4
Rhode Island§	—	0	4	4	7	—	0	1	—	—	—	0	5	4	2
Vermont§	1	0	2	5	5	—	0	1	—	1	—	0	2	—	3
Mid. Atlantic	4	4	14	46	104	1	0	3	9	8	17	33	51	434	429
New Jersey	—	0	0	—	—	—	0	0	—	—	—	4	10	49	61
New York (Upstate)	1	1	6	18	16	1	0	2	5	2	1	2	8	24	27
New York City	—	1	5	1	44	—	0	0	—	—	16	23	37	300	261
Pennsylvania	3	1	10	27	44	—	0	2	4	6	—	5	11	61	80
E.N. Central	11	9	28	157	240	—	1	6	22	28	17	26	47	216	373
Illinois	N	0	0	N	N	N	0	0	N	N	2	5	14	36	118
Indiana	—	2	19	19	85	—	0	3	2	10	8	2	10	39	36
Michigan	1	0	3	7	6	—	0	1	—	1	5	4	18	62	33
Ohio	10	7	18	131	149	—	1	4	20	17	—	11	27	66	172
Wisconsin	—	0	0	—	—	—	0	0	—	—	2	1	4	13	14
W.N. Central	4	2	8	36	81	2	0	2	9	4	2	7	14	73	113
Iowa	—	0	0	—	—	—	0	0	—	—	1	0	2	7	4
Kansas	3	1	4	11	36	2	0	1	7	1	—	0	3	3	6
Minnesota	—	0	0	—	—	—	0	0	—	—	—	2	6	15	29
Missouri	1	1	4	21	43	—	0	1	2	1	—	4	10	45	71
Nebraska§	—	0	0	—	—	—	0	0	—	—	1	0	2	3	3
North Dakota	—	0	2	4	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	—	2	—	0	1	—	2	—	0	1	—	—
S. Atlantic	36	22	51	518	451	1	4	14	66	63	39	59	197	678	509
Delaware	—	0	1	6	1	—	0	0	—	—	1	0	4	8	1
District of Columbia	N	0	0	N	N	N	0	0	N	N	—	2	9	41	28
Florida	18	14	36	332	239	1	3	13	47	34	18	20	37	268	207
Georgia	11	7	23	143	168	—	1	5	19	24	—	13	169	74	48
Maryland§	1	0	1	4	4	—	0	0	—	1	9	8	16	81	72
North Carolina	N	0	0	N	N	N	0	0	N	N	8	6	19	122	65
South Carolina§	—	0	0	—	—	—	0	0	—	—	3	2	6	19	18
Virginia§	N	0	0	N	N	N	0	0	N	N	—	5	16	64	69
West Virginia	6	1	7	33	39	—	0	2	—	4	—	0	1	1	1
E.S. Central	7	5	25	128	119	—	1	4	17	14	11	22	36	286	266
Alabama§	N	0	0	N	N	N	0	0	N	N	—	8	17	99	120
Kentucky	2	1	6	33	25	—	0	2	4	4	—	1	10	17	14
Mississippi	—	0	2	—	—	—	0	1	—	—	1	3	18	49	26
Tennessee§	5	3	22	95	94	—	0	3	13	10	10	8	19	121	106
W.S. Central	—	2	7	29	38	—	0	1	5	7	24	45	74	543	492
Arkansas§	—	0	5	16	5	—	0	1	2	2	5	3	35	71	24
Louisiana	—	1	6	13	33	—	0	1	3	5	—	10	33	48	107
Oklahoma	N	0	0	N	N	N	0	0	N	N	1	1	7	14	22
Texas§	—	0	0	—	—	—	0	0	—	—	18	28	40	410	339
Mountain	2	2	7	42	41	—	0	3	6	4	3	9	18	59	141
Arizona	—	0	0	—	—	—	0	0	—	—	—	4	13	19	77
Colorado	—	0	0	—	—	—	0	0	—	—	—	1	5	3	28
Idaho§	N	0	1	N	N	N	0	1	N	N	—	0	2	2	1
Montana§	—	0	1	—	—	—	0	0	—	—	—	0	7	—	—
Nevada§	2	1	4	19	20	—	0	1	3	1	3	1	7	25	22
New Mexico§	—	0	1	—	—	—	0	0	—	—	—	1	4	10	5
Utah	—	1	6	19	21	—	0	3	3	3	—	0	2	—	8
Wyoming§	—	0	2	4	—	—	0	0	—	—	—	0	1	—	—
Pacific	—	0	1	2	1	—	0	1	—	1	2	45	71	456	628
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
California	N	0	0	N	N	N	0	0	N	N	2	41	65	417	565
Hawaii	—	0	1	2	1	—	0	1	—	1	—	0	3	10	8
Oregon§	N	0	0	N	N	N	0	0	N	N	—	0	3	8	5
Washington	N	0	0	N	N	N	0	0	N	N	—	2	9	21	50
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	—	—	1	3	11	43	33
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 notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† Includes cases of invasive pneumococcal disease caused by drug-resistant *S. pneumoniae* (DRSP) (NNDSS event code 11720).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending April 4, 2009, and March 29, 2008 (13th week)*

	Varicella (chickenpox)					West Nile virus disease† Neuroinvasive					West Nile virus disease† Nonneuroinvasive§				
Reporting area	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	171	437	1,015	4,661	8,559	—	1	74	—	2	—	2	77	—	2
New England	4	13	29	85	272	—	0	2	—	—	—	0	1	—	—
Connecticut	—	0	0	—	—	—	0	2	—	—	—	0	1	—	—
Maine¶	—	3	11	—	101	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
New Hampshire	4	4	12	58	93	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
Vermont¶	—	4	17	27	78	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	29	44	83	465	753	—	0	8	—	—	—	0	4	—	—
New Jersey	N	0	0	N	N	—	0	2	—	—	—	0	1	—	—
New York (Upstate)	N	0	0	N	N	—	0	5	—	—	—	0	2	—	—
New York City	—	0	0	—	—	—	0	2	—	—	—	0	2	—	—
Pennsylvania	29	44	83	465	753	—	0	2	—	—	—	0	1	—	—
E.N. Central	63	149	312	2,054	1,894	—	0	8	—	—	—	0	3	—	—
Illinois	2	39	73	535	151	—	0	4	—	—	—	0	2	—	—
Indiana	—	0	5	21	—	—	0	1	—	—	—	0	1	—	—
Michigan	22	57	116	651	847	—	0	4	—	—	—	0	2	—	—
Ohio	36	46	106	762	814	—	0	3	—	—	—	0	1	—	—
Wisconsin	3	5	50	85	82	—	0	2	—	—	—	0	1	—	—
W.N. Central	22	21	72	402	424	—	0	6	—	1	—	0	21	—	—
Iowa	N	0	0	N	N	—	0	2	—	—	—	0	1	—	—
Kansas	6	5	22	87	221	—	0	2	—	1	—	0	3	—	—
Minnesota	—	0	0	—	—	—	0	2	—	—	—	0	4	—	—
Missouri	16	12	51	279	184	—	0	3	—	—	—	0	1	—	—
Nebraska¶	N	0	0	N	N	—	0	1	—	—	—	0	6	—	—
North Dakota	—	0	39	36	4	—	0	2	—	—	—	0	11	—	—
South Dakota	—	0	4	—	15	—	0	5	—	—	—	0	6	—	—
S. Atlantic	48	73	163	704	1,592	—	0	3	—	—	—	0	4	—	—
Delaware	—	1	5	1	5	—	0	0	—	—	—	0	1	—	—
District of Columbia	—	0	3	—	7	—	0	1	—	—	—	0	0	—	—
Florida	39	29	68	469	568	—	0	2	—	—	—	0	0	—	—
Georgia	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Maryland¶	N	0	0	N	N	—	0	2	—	—	—	0	3	—	—
North Carolina	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
South Carolina¶	—	9	67	58	268	—	0	0	—	—	—	0	1	—	—
Virginia¶	—	17	60	28	518	—	0	0	—	—	—	0	1	—	—
West Virginia	9	11	33	148	226	—	0	1	—	—	—	0	0	—	—
E.S. Central	—	11	101	17	342	—	0	7	—	—	—	0	9	—	2
Alabama¶	—	11	101	16	336	—	0	3	—	—	—	0	2	—	—
Kentucky	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	1	1	6	—	0	4	—	—	—	0	8	—	1
Tennessee¶	N	0	0	N	N	—	0	2	—	—	—	0	3	—	1
W.S. Central	—	91	435	492	2,509	—	0	8	—	—	—	0	7	—	—
Arkansas¶	—	5	61	19	223	—	0	1	—	—	—	0	1	—	—
Louisiana	—	1	5	15	30	—	0	3	—	—	—	0	5	—	—
Oklahoma	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Texas¶	—	79	422	458	2,256	—	0	6	—	—	—	0	4	—	—
Mountain	4	33	89	402	742	—	0	12	—	1	—	0	22	—	—
Arizona	—	0	0	—	—	—	0	10	—	1	—	0	8	—	—
Colorado	4	14	44	181	307	—	0	4	—	—	—	0	10	—	—
Idaho¶	N	0	0	N	N	—	0	1	—	—	—	0	6	—	—
Montana¶	—	5	27	66	112	—	0	0	—	—	—	0	2	—	—
Nevada¶	N	0	0	N	N	—	0	2	—	—	—	0	3	—	—
New Mexico¶	—	2	10	33	88	—	0	1	—	—	—	0	1	—	—
Utah	—	11	53	122	231	—	0	2	—	—	—	0	5	—	—
Wyoming¶	—	0	4	—	4	—	0	0	—	—	—	0	2	—	—
Pacific	1	3	8	40	31	—	0	38	—	—	—	0	23	—	—
Alaska	—	2	6	25	10	—	0	0	—	—	—	0	0	—	—
California	—	0	0	—	—	—	0	37	—	—	—	0	20	—	—
Hawaii	1	1	4	15	21	—	0	0	—	—	—	0	0	—	—
Oregon¶	N	0	0	N	N	—	0	2	—	—	—	0	4	—	—
Washington	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	1	17	—	17	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	9	29	82	145	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2008 and 2009 are provisional.
† 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 notifiable in all states. Data from states where the condition is not notifiable 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/epo/dphsi/phs/infdis.htm.
¶ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE III. Deaths in 122 U.S. cities,* week ending April 4, 2009 (13th week)

Reporting area	All causes, by age (years)						P&I†
	All Ages	≥65	45–64	25–44	1–24	<1	Total
New England	539	373	106	40	9	11	62
Boston, MA	137	82	32	15	4	4	17
Bridgeport, CT	30	23	6	1	—	—	5
Cambridge, MA	15	13	1	—	—	1	2
Fall River, MA	23	17	5	1	—	—	1
Hartford, CT	50	31	9	9	1	—	4
Lowell, MA	26	21	4	1	—	—	1
Lynn, MA	7	5	—	1	1	—	1
New Bedford, MA	31	23	7	1	—	—	1
New Haven, CT	U	U	U	U	U	U	U
Providence, RI	53	38	12	2	—	1	4
Somerville, MA	3	3	—	—	—	—	—
Springfield, MA	45	31	7	3	1	3	5
Waterbury, CT	42	28	9	3	1	1	4
Worcester, MA	77	58	14	3	1	1	17
Mid. Atlantic	1,954	1,365	432	81	34	41	115
Albany, NY	43	34	5	1	3	—	2
Allentown, PA	27	21	5	1	—	—	—
Buffalo, NY	76	52	16	1	3	4	7
Camden, NJ	30	21	5	2	1	1	1
Elizabeth, NJ	11	7	3	1	—	—	1
Erie, PA	45	33	9	2	—	1	5
Jersey City, NJ	53	37	11	4	1	—	3
New York City, NY	1,032	718	243	42	13	15	61
Newark, NJ	34	11	11	7	—	5	3
Paterson, NJ	12	3	6	1	—	2	2
Philadelphia, PA	153	90	43	10	5	5	9
Pittsburgh, PA§	42	33	7	1	1	—	4
Reading, PA	32	30	2	—	—	—	2
Rochester, NY	163	122	32	2	4	3	8
Schenectady, NY	22	16	4	2	—	—	3
Scranton, PA	42	30	11	1	—	—	1
Syracuse, NY	75	61	7	—	3	4	1
Trenton, NJ	21	14	4	2	—	1	—
Utica, NY	19	15	3	1	—	—	1
Yonkers, NY	22	17	5	—	—	—	1
E.N. Central	2,012	1,364	449	127	35	37	166
Akron, OH	60	42	15	1	—	2	1
Canton, OH	39	29	4	5	1	—	4
Chicago, IL	300	190	72	26	6	6	30
Cincinnati, OH	87	57	18	5	3	4	7
Cleveland, OH	235	167	52	8	5	3	17
Columbus, OH	189	128	41	14	1	5	16
Dayton, OH	138	96	26	12	3	1	16
Detroit, MI	137	74	41	13	6	3	7
Evansville, IN	37	27	8	1	1	—	1
Fort Wayne, IN	70	56	10	3	—	1	9
Gary, IN	27	12	11	2	2	—	1
Grand Rapids, MI	60	46	12	—	—	2	5
Indianapolis, IN	189	119	44	19	3	4	15
Lansing, MI	48	31	13	4	—	—	4
Milwaukee, WI	94	62	24	5	2	1	13
Peoria, IL	45	35	7	2	1	—	7
Rockford, IL	62	44	15	2	—	1	3
South Bend, IN	47	41	6	—	—	—	1
Toledo, OH	91	62	21	5	—	3	6
Youngstown, OH	57	46	9	—	1	1	3
W.N. Central	657	432	151	49	13	11	43
Des Moines, IA	77	53	16	5	1	2	4
Duluth, MN	25	18	5	1	1	—	3
Kansas City, KS	26	18	5	1	2	—	5
Kansas City, MO	96	52	23	15	5	1	3
Lincoln, NE	52	37	10	5	—	—	1
Minneapolis, MN	76	50	16	7	1	2	10
Omaha, NE	85	62	19	1	2	1	9
St. Louis, MO	97	55	28	9	1	3	5
St. Paul, MN	58	39	17	2	—	—	2
Wichita, KS	65	48	12	3	—	2	1
S. Atlantic	1,201	759	269	101	40	30	64
Atlanta, GA	152	87	41	16	7	1	4
Baltimore, MD	167	103	42	10	8	4	13
Charlotte, NC	123	71	31	13	3	5	12
Jacksonville, FL	131	85	24	12	5	5	2
Miami, FL	106	76	18	6	5	1	4
Norfolk, VA	57	35	13	6	2	1	—
Richmond, VA	40	22	10	5	1	2	2
Savannah, GA	63	45	13	3	2	—	5
St. Petersburg, FL	65	39	12	9	—	5	4
Tampa, FL	209	142	48	11	5	3	13
Washington, D.C.	71	42	14	8	2	3	2
Wilmington, DE	17	12	3	2	—	—	3
E.S. Central	862	549	209	66	18	20	70
Birmingham, AL	167	110	35	10	6	6	15
Chattanooga, TN	93	65	23	4	1	—	1
Knoxville, TN	103	70	21	7	1	4	5
Lexington, KY	51	32	14	3	1	1	7
Memphis, TN	159	99	37	14	3	6	20
Mobile, AL	103	66	28	7	2	—	9
Montgomery, AL	40	21	13	4	1	1	2
Nashville, TN	146	86	38	17	3	2	11
W.S. Central	1,397	885	349	92	35	36	92
Austin, TX	89	56	21	9	1	2	4
Baton Rouge, LA	45	40	3	2	—	—	—
Corpus Christi, TX	54	41	9	3	1	—	5
Dallas, TX	191	116	46	10	7	12	15
El Paso, TX	92	61	22	6	2	1	6
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	435	257	120	30	17	11	21
Little Rock, AR	94	57	26	7	2	2	3
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	226	149	52	17	2	6	18
Shreveport, LA	59	43	11	2	2	1	8
Tulsa, OK	112	65	39	6	1	1	12
Mountain	1,126	749	263	69	24	21	71
Albuquerque, NM	113	74	24	9	4	2	11
Boise, ID	66	44	11	8	2	1	3
Colorado Springs, CO	80	57	14	5	2	2	—
Denver, CO	92	64	20	6	1	1	5
Las Vegas, NV	280	175	81	16	5	3	24
Ogden, UT	35	25	8	1	—	1	5
Phoenix, AZ	120	70	34	4	6	6	5
Pueblo, CO	39	27	9	2	1	—	5
Salt Lake City, UT	113	74	28	6	1	4	7
Tucson, AZ	188	139	34	12	2	1	6
Pacific	1,652	1,162	334	100	25	31	164
Berkeley, CA	10	7	3	—	—	—	2
Fresno, CA	100	66	18	13	1	2	7
Glendale, CA	28	23	3	2	—	—	8
Honolulu, HI	81	63	8	7	1	2	8
Long Beach, CA	65	46	13	3	2	1	9
Los Angeles, CA	262	167	66	19	3	7	29
Pasadena, CA	21	15	4	2	—	—	1
Portland, OR	99	71	17	5	2	4	6
Sacramento, CA	208	153	45	9	1	—	26
San Diego, CA	145	97	32	10	2	4	14
San Francisco, CA	96	62	23	5	3	3	11
San Jose, CA	203	142	44	10	3	4	20
Santa Cruz, CA	36	27	5	4	—	—	2
Seattle, WA	117	86	22	2	5	2	8
Spokane, WA	66	51	11	2	—	2	8
Tacoma, WA	115	86	20	7	2	—	5
Total¶	**11,400**	**7,638**	**2,562**	**725**	**233**	**238**	**847**

U: Unavailable. —:No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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

Data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the following Friday. Data are compiled in the National Center for Public Health Informatics, Division of Integrated Surveillance Systems and Services. Address all inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333 or to *mmwrq@cdc.gov.*

☆ U.S. Government Printing Office: 2009-523-019/41166 Region IV ISSN: 0149-2195