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Pool Chemical–Associated Health Events in Public and Residential Settings — United States, 1983–2007

Swimming is the second most popular exercise in the United States, with approximately 339 million swimming visits to recreational water venues, including disinfected ones (e.g., pools, water parks, and interactive fountains), each year (*1*). Pool chemicals* are added to the water in these venues to prevent transmission of infectious pathogens. These chemicals can cause injury when handled inappropriately or when operators fail to use appropriate personal protective equipment. This report summarizes 36 pool chemical–associated health events reported to the New York State Department of Health (NYSDOH) for public aquatic venues during 1983–2006 and includes analyses of 1998–2007 data from the National Electronic Injury Surveillance System (NEISS) and 2007 data from the National Poison Data System (NPDS). NYSDOH reported primarily summertime health events resulting in acute respiratory illness. NEISS and NPDS data revealed that pool chemical–associated injuries or exposures led to thousands of estimated annual emergency department (ED) visits or actual poison center consultations, respectively. These pool chemical–associated health events can be prevented through 1) improved design and engineering and 2) education and training that stresses safe pool-chemical handling and storage practices and safe and preventive maintenance of equipment.

New York State Surveillance

Since 1948, NYSDOH has mandated the reporting of injury or illness occurring at public aquatic facilities. Since 1986, events resulting in 1) death, 2) referral to hospitals or other facilities for medical attention, or 3) illness associated with water quality, specifically must be reported. NYSDOH conducted a retrospective review of reports on pool chemical–associated injuries for the period 1983–2006. Subsequently, NYSDOH reported 36 pool chemical–associated health events (range: 0–4 events/year) to CDC's Waterborne Disease and Outbreak Surveillance System (WBDOSS) (*2*). These health events were characterized by acute respiratory illness (34 [94%]) and affected a median of five persons (range: 1–91 persons), with no deaths reported. The reported health events occurred in schools or colleges (13 [36%]), membership clubs (10 [28%]), housing complexes or hotels (six [17%]), community aquatic facilities (five [14%]), and institutions (two [6%]). The majority of events (31 [86%]) occurred in settings where pools might be viewed as an amenity (i.e., not in a community aquatic facility). Twenty-one (58%) occurred during the summer swim season, from Memorial Day through Labor Day. Five events (14%) involved direct exposure to chlorine bleach or acid. The other 31 health events (86%) resulted from exposure to toxic chlorine gas. Of these 31 events, 27 (87%) were caused by exposure to chlorine gas generated by mixing incompatible pool chemicals, most frequently chlorine bleach and acid (24 [89%]). The primary contributing factors to the

* The term "pool chemicals" includes but is not limited to chlorine bleach (calcium hypochlorite or sodium hypochlorite used to make a hypochlorous acid solution), stabilized chlorine (dichlor-s-triazinetrione or trichloro-s-triazinetrione), bromine (hypobromous acid), hydrogen peroxide, and hydrochloric (muriatic) acid.

INSIDE

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36 events were poor chemical handling or storage practices (25 events [69%]), poor equipment maintenance practices (six [17%]), poor facility design and engineering (four [11%]), and unknown (one [3%]). Two New York state health events that illustrate the contributing factors follow.

Poor facility design and engineering. In 1988, the main recirculation pump of an outdoor community pool shut down after a momentary power outage. However, the chlorine bleach and acid[†] delivery pumps continued running, allowing chlorine bleach and acid to mix within the piping without dilution. When the recirculation pump was restarted, the chlorine gas generated in the static water return lines vented in the shallow end of the pool. Consequently, according to the police report, 21 children were taken to the hospital for difficulty breathing; of these, three were admitted to the pediatric intensive-care unit and seven to the general pediatric unit. Emergency response required seven ambulances, two paramedic units, and 11 police officers. This and similar events supported New York state pool code revisions requiring installation of a device that automatically deactivates chlorine bleach and acid delivery pumps when no water is flowing in the recirculation system (*3*).

Poor chemical handling or storage practices. In 1995, a custodian maintaining the indoor school pool ordered 5-gallon containers of chlorine bleach but instead received 5-gallon containers that looked the same but contained acid. Two custodians reported failing to read the product labels and mistakenly pouring acid into the chlorine bleach tank, thus generating chlorine gas. The school was evacuated; at least 81 students, likely exposed to gas spread through the ventilation system, and the two custodians were taken to the hospital with acute respiratory symptoms. Emergency response involved multiple fire departments and government agencies (e.g., the county disaster office). NYSDOH consequently developed a health education campaign focused on safe chemical handling and storage practices.

National Surveillance Systems

NEISS. The U.S. Consumer Product Safety Commission's NEISS captures data on ED visits for injuries associated with consumer products, such as pool chemicals. NEISS records include NEISS product codes (pool chemical code: 938); primary diagnosis; primary injured body part; disposition; incident location; age, sex, and race/ethnicity of the patient; and brief narratives describing activities leading to injury. The program collects these data from a nationally representative probability sample of approximately 100 hospitals in the United States (*4*). Each case was weighted based on the inverse probability

[†] Typically, hydrochloric acid or another acid is added to swimming pools to maintain pH at 7.2–7.8 to improve the disinfection efficacy of chlorine bleach.

of the hospital being selected, and the weights were summed to produce national estimates. Rates per 100,000 population were calculated using these estimates and U.S. Census Bureau population estimates; 95% confidence intervals were calculated using statistical software that accounted for the sample weights and complex sampling design. During 1998–2007, the estimated median number of annual ED visits for pool chemical–associated injuries was 4,120 (range: 3,315–5,216) (Figure). In 2007, an estimated 4,635 persons (1.5 per 100,000 population [95% confidence interval = 1.0–2.1]) visited the ED for pool chemical–associated injuries (Table). More than half (58% [2,698 (range: 1,992–3,404)]) of the estimated injuries occurred during the summer swim season. Some patients inhaled chemical fumes (38 [33%] of the 115 actual NEISS ED visits) when opening pool chemical containers, attempting to predissolve pool chemicals, or handling chemicals; eye injuries resulting from pool chemicals splashing also occurred (22 [19%] of 115). No deaths were documented.

NPDS. The American Association of Poison Control Centers maintains the NPDS, which collects real-time exposure data from the majority (60 of 61) of poison centers. During 2007, the poison centers received calls regarding 9,573 human exposures to a single pool or aquarium chemical (*5*).[§] Of these exposures, 39% (3,775) involved persons aged <6 years, 97% (9,287) were unintentional, and 19% (1,781) resulted in injuries for which patients sought health-care treatment. No deaths were documented.

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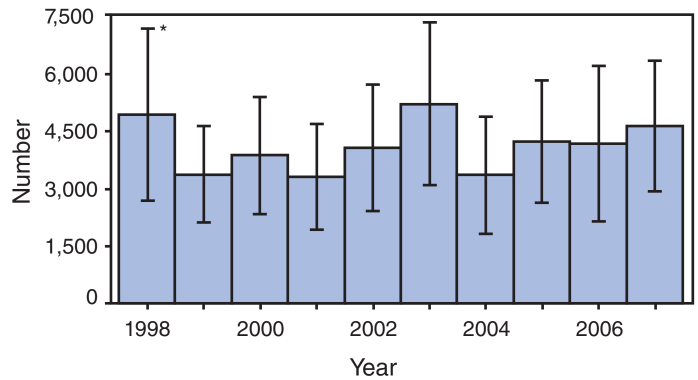
Editorial Note: Operation of public aquatic venues requires balancing different risk reduction plans to protect the health of staff members and patrons. Since the 1920s, chemical disinfection and filtration have served as the primary barriers to waterborne pathogen transmission at aquatic venues. However, the need for chemical disinfection to control waterborne disease outbreaks must be balanced with reducing the number of injuries associated with use of these same chemicals. With the increasing number of reports of recreational water–associated outbreaks, public pool operators and residential pool owners need to remain vigilant in maintaining good water quality and disinfection to protect swimmer health (*2*).

Reporting of pool chemical–associated health events in the United States is not universally mandated, and no single surveillance system exists to characterize completely the number

FIGURE. Estimated number of emergency department visits for injuries associated with pool chemicals — United States, 1998–2007



SOURCE: National Electronic Injury Surveillance System. Estimates query builder [Internet]. Bethesda, MD: US Consumer Product Safety Commission; 2009. Available at https://www.cpsc.gov/cgibin/neissquery/home.aspx.
* 95% confidence interval.

of exposures or associated injuries. The national NEISS and NPDS data presented in this report indicate that pool chemical exposures and associated injuries are common. Although no one data source alone elucidates completely the epidemiology of pool chemical–associated injuries, together they reveal multiple commonalities that suggest these injuries are preventable. Poor chemical handling and storage practices at public aquatic venues, particularly those leading to mixing of incompatible chemicals, were the primary contributing factors to New York state health events. Data from NEISS show that inhalation of chemical fumes and splashing pool chemicals into the eyes were the primary pool chemical–associated injuries for which patients sought ED treatment. Finally, NPDS data reveal that nearly all single pool chemical exposures likely were unintentional.

New CDC recommendations for preventing injuries associated with pool chemicals were based on a review of the health events and data in this report and other government regulatory guidance (*6*). These recommendations focus on improving 1) facility design and engineering and 2) education and training (Box) that stresses safe chemical handling and storage practices and safe and preventive maintenance of equipment.

The NYSDOH reports illustrate that these health events at public aquatic venues can injure a large number of persons and likely are preventable through appropriate education and training (e.g., instructing persons to never mix chlorine products with acid). Previous studies underscore that requiring pool operator training can reduce the number of water-quality violations (*7,8*). Future prevention efforts should require training for all public pool operators. The disproportionate (86%) number of pool chemical–associated health events

[§] Report cited in reference aggregates statistics for exposures to pool and aquarium chemicals.

TABLE. Estimated number, percentage, and rate of pool chemical–associated injuries treated in emergency departments, by selected characteristics — United States, 2007

Characteristic	No.	Weighted estimate*†	(95% CI§)	%¶	Annual rate**	(95% CI)
Total	**115**	**4,635**	**(2,929–6,341)**	**100**	**1.5**	**(1.0–2.1)**
Injury diagnosis						
Poisoning††	47	1,844	(1,216–2,472)	40	0.6	(0.4–0.8)
Dermatitis/Conjunctivitis	31	1,245	(691–1,799)	27	0.4	(0.2–0.6)
Chemical burns	16	820	(187–1,454)	18	—	—
Other	21	725	(282–1,169)	16	—	—
Affected body part						
All parts of the body (more than 50% of body)§§	59	2,255	(1,704–2,807)	49	0.7	(0.6–0.9)
Eye	41	1,938	(1,123–2,752)	42	0.6	(0.4–0.9)
Other (e.g., upper trunk [not shoulder], hand, or foot)	15	442	(74–809)	10	—	—
Patient disposition						
Treated and released, or examined and released without treatment	111	4,391	(3,230–5,551)	95	1.5	(1.1–1.8)
Treated and admitted for hospitalization (within same facility)	2	160	(0–369)	3	—	—
Left without being seen, or left against medical advice	1	69	(0–208)	1	—	—
Treated and transferred to another hospital	1	15	(0–46)	0	—	—
Incident location						
Residence	51	2,010	(1,125–2,896)	43	—	—
Place of recreation or sports	11	486	(98–874)	10	—	—
School	1	15	(0–46)	0	—	—
Other identified location	6	311	(30–592)	7	—	—
Unknown	46	1,812	(935–2,689)	39	—	—
Patient age (yrs)						
≤5	22	442	(86–798)	10	—	—
6–11	18	808	(279–1,337)	17	—	—
12–17	18	445	(167–723)	10	—	—
18–45	39	1,975	(1,180–2,769)	43	1.7	(1.0–2.4)
46–64	18	966	(477–1,455)	21	—	—
≥65	0	0		0	—	—
Patient sex						
Male	65	2,537	(1,695–3,379)	55	1.7	(1.1–2.3)
Female	50	2,098	(1,383–2,813)	45	1.4	(0.9–1.8)
Patient race/ethnicity						
White	57	2,429	(1,364–3,494)	52	—	—
Hispanic¶¶	9	152	(0–308)	3	—	—
Black¶¶	8	136	(0–324)	3	—	—
American Indian/Alaska Native	2	140	(0–423)	3	—	—
Unknown	39	1,778	(780–2,776)	38	—	—

SOURCE: National Electronic Injury Surveillance System (NEISS). Estimates query builder [Internet]. Bethesda, MD: US Consumer Product Safety Commission; 2009. Available at https://www.cpsc.gov/cgibin/neissquery/home.aspx.

* Each case was weighted based on the inverse probability of the hospital being selected, and the weights were summed to produce national estimates.

† Categorical counts might not total 4,635 because of rounding.

§ Confidence interval.

¶ Categorical percentages might not total 100% because of rounding.

** Rates per 100,000 population were calculated using U.S. Census Bureau population estimates; 95% confidence intervals were calculated using statistical software that accounted for the sample weights and complex sampling design. If the sample count was <20 or the coefficient of variation was >30%, the estimate was unstable and not reported. Rates by incident location and race/ethnicity are not reported because of the high percentage of patients with unknown race/ethnicity.

†† Poisoning includes ingestion or inhalation of vapors, fumes, or gases.

§§ For a poisoning injury diagnosis, NEISS requires that the affected body part be coded as "all parts of the body (more than 50% of body)."

¶¶ Black includes Hispanic and non-Hispanic blacks, whereas Hispanics excludes Hispanic blacks.

occurring in settings where pools were not the primary focus (e.g., schools or hotels) specifically calls for emphasizing training efforts in these settings. Additionally, because at least 43% of ED-treated, pool chemical–associated injuries occurred at a residence, messages about safe chemical handling and storage, particularly the use of personal protective equipment (e.g., safety glasses and appropriate masks), also should target residential pool owners.

Health departments conducting or considering surveillance of pool chemical–associated injuries might consider formalizing mechanisms to capture data from emergency response agencies. This could increase the representativeness of the data

BOX. CDC recommendations for preventing pool chemical–associated injuries for public pool operators and residential pool owners*

Learn about pool chemical safety

- Always read entire product label or material safety data sheet (MSDS).
- Always complete appropriate training or education.

Store pool chemicals safely

- Always secure chemicals away from children and animals.
- Always store chemicals as recommended by the manufacturer.
- Always protect stored chemicals from mixing or getting wet.
- Always respond to pool chemical spills immediately.

Use pool chemicals safely

- Always read product label and manufacturer's directions before each use.
- Always use chemicals in manufacturer's original, labeled container.
- Always use appropriate protective gear, such as safety glasses and gloves.
- Never predissolve solid chemicals or add water to liquid chemicals.
- Never mix chlorine products with each other, with acid, or with any other substance.

* Additional information available at http://www.cdc.gov/healthyswimming/pdf/pool_chem_assoc_inj.pdf.

by increasing detection of events that otherwise might not be reported. Data completeness and validity also might improve because emergency responders often are on scene soon after these health events occur.

Pool codes governing aquatic venue design, construction, operation, and maintenance are written and approved by state and/or local officials. No single federal agency is responsible for regulating treated aquatic venues. To raise national awareness and minimize the occurrence of preventable health events, CDC supports the development of a nonregulatory, model aquatic health code (MAHC) (*9*). The MAHC effort, currently led by NYSDOH, will produce a code for voluntary adoption by health jurisdictions as individual modules are finalized. The MAHC is designed to be a data-driven, knowledge-based, national model pool code that balances the control measures needed for both waterborne disease transmission and safe chemical use.

Acknowledgments

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References

1. US Census Bureau. 2009 statistical abstract of the United States. Recreation and leisure activities: participation in selected sports activities 2006. Available at http://www.census.gov/compendia/statab/tables/09s1209.pdf.
2. CDC. Surveillance for waterborne disease and outbreaks associated with recreational water use and other aquatic facility-associated health events—United States, 2005–2006. MMWR 2008;57(No. SS-9).
3. New York State Department of Health. Official compilation of codes, rules, and regulations of the state of New York (NYCRR), Title 10 (health), state sanitary code, subpart 6-1, section 6-1.29, item 11.7. Available at http://www.health.state.ny.us/nysdoh/phforum/nycrr10.htm.
4. National Electronic Injury Surveillance System. Estimates query builder [Internet]. Bethesda, MD: US Consumer Product Safety Commission; 2009. Available at https://www.cpsc.gov/cgibin/neissquery/home.aspx.
5. Bronstein AC, Spyker DA, Cantilena JF, et al. 2007 annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 25th annual report. Clin Toxicol 2008;46:927–1057.
6. CDC. Recommendations for preventing pool chemical–associated injuries. Available at http://www.cdc.gov/healthyswimming/pdf/pool_chem_assoc_inj.pdf.
7. Buss BF, Safranek TJ, Magri JM, Török TJ, Beach MJ, Foley BP. Association between swimming pool operator certification and reduced pool chemistry violations—Nebraska, 2005–2006. J Environ Health 2009;71:36–40.
8. Johnston K, Kinziger M. Certified operators: does certification provide significant results in real-world pool and spa chemistry? Int J Aquatic Res Educ 2007;1:18–33.
9. CDC. Model aquatic health code. Available at http://www.cdc.gov/healthyswimming/mahc/model_code.htm.

Pediatric Bacterial Meningitis Surveillance — African Region, 2002–2008

Sub-Saharan Africa has one of the world's greatest disease burdens of *Haemophilus influenzae* type b (Hib), *Streptococcus pneumoniae,* and *Neisseria meningitidis* infections. In 2000, Hib and *S. pneumoniae* infections accounted for approximately 500,000 deaths in the region (*1*); during the past 10 years, *N. meningitidis* has been responsible for recurring epidemics resulting in approximately 700,000 cases of meningitis.* Introduction of vaccines against bacterial pathogens in Africa has been constrained by competing public health priorities,

* Additional information available at http://www.who.int/csr/disease/meningococcal/en/index.html.

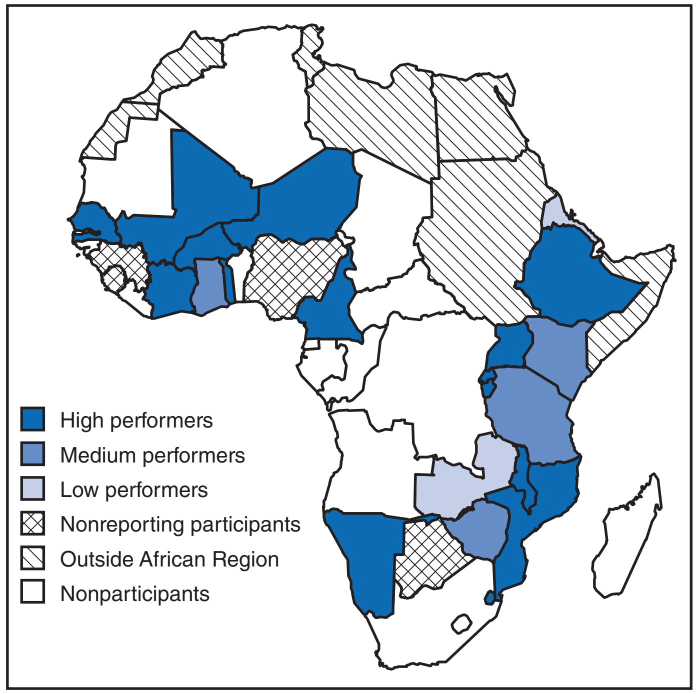
limited availability of Hib and *S. pneumoniae* vaccines, suboptimal *N. meningitidis* vaccine, inadequate funding, and limited information regarding the disease burden associated with these infections (*2,3*). The World Health Organization (WHO) and CDC analyzed data for 2002–2008 from the Pediatric Bacterial Meningitis (PBM) Surveillance Network, which collects information on laboratory-confirmed bacterial meningitis cases among children aged <5 years at sentinel hospitals in countries throughout the WHO African Region. The results of that analysis determined that, during 2002–2008, a total of 74,515 suspected cases of meningitis were reported. Among the 69,208 suspected cases with known laboratory results, 4,674 (7%) samples were culture-positive for the three bacterial infections under surveillance: 2,192 (47%) were positive for *S. pneumoniae*, 1,575 (34%) for *Haemophilus influenzae*, and 907 (19%) for *N. meningitidis*. The majority of the remaining culture results were negative. These and other PBM network findings will help guide strategies for strengthening laboratory and data management capacity at existing sentinel hospitals and for planning future network expansion in the WHO African Region.

PBM Surveillance Network

WHO and global immunization partners launched the PBM network in the WHO African Region in 2001. During 2001–2002, clinical, laboratory, and data management staffs in 26 of the 46 countries in the African Region were trained to conduct hospital-based PBM sentinel surveillance. In 2008, 22 countries continued to participate in the network (Figure). Initial country involvement was determined according to ministry of health interest in new vaccine introduction and commitment for conducting disease surveillance, eligibility for financial support from the GAVI Alliance,[†] and lack of resource conflicts (e.g., with polio eradication activities). Standardized surveillance guidelines were developed for identifying suspected meningitis cases, laboratory confirmation, and data reporting.[§]

Of the 22 countries reporting data in 2008, 18 had one sentinel site, and four had two or more sites. In 2003, Kenya, Uganda, and the United Republic of Tanzania expanded their national programs to include additional sentinel sites with support from the Network for Surveillance of Pneumococcal Disease in the East African Region (netSPEAR).[¶] Including sites from netSPEAR, a total of 26 sentinel hospitals participated in the PBM network in 2008. Twenty-two (85%) of

FIGURE. Countries trained to conduct surveillance for the Pediatric Bacterial Meningitis Surveillance Network, by performance level* — World Health Organization African Region, 2008



* Based on four clinical and laboratory indicators: 1) percentage of patients in clinically suspected cases who received a lumbar puncture (target: 80%), 2) percentage of lumbar punctures performed for which results were recorded in the database (target: 90%), 3) percentage of specimens of purulent cerebrospinal fluid that showed bacterial growth (target: 20%), and 4) number of months for which reports were made each year (target: ≥8 months); meeting this indicator is required to obtain a medium or high performance level. High performers met three or more indicators, medium performers met two indicators, and poor performers met one or fewer indicators. High performers were Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Mozambique, Malawi, Mali, Namibia, Niger, Rwanda, Swaziland, Senegal, Togo, and Uganda. Medium performers were Kenya, Ghana, the United Republic of Tanzania, and Zimbabwe. Low performers were Eritrea, Gambia, and Zambia. Participating countries that did not report during 2008 were Benin, Botswana, Guinea, and Sierra Leone.

the sentinel sites were located at national referral or teaching pediatric hospitals in major urban centers with on-site laboratory capacity to identify bacterial pathogens.

The coordination and implementation of surveillance activities are conducted at the country level collaboratively by the ministry of health and WHO staff and at the regional level by WHO. Sentinel hospital teams include clinical, laboratory, and data management staff members. At each site, all children aged 0–59 months with an illness meeting the standardized case definition for meningitis** are reported as suspected

[†] GAVI Alliance provides funding to support immunization activities and vaccine purchase in countries with annual gross national income per capita of <$1000. In 2008, 36 (78%) of 46 countries in the African Region were GAVI eligible.

[§] Information available at http://afro.who.int/hib/manual/index.html.

[¶] Information available at http://www.netspear.org.

** A child with sudden onset of fever and one or more of the following clinical symptoms or signs of meningitis: seizures other than febrile seizures, neck stiffness, bulging fontanel (in children aged <12 months), poor sucking, altered consciousness, irritability, other meningeal signs, toxic appearance, or petechial or purpuric rash.

TABLE. Number and percentage of suspected* and confirmed cases of *Haemophilus influenzae*,† *Streptococcus pneumoniae*, and *Neisseria meningitidis* infections — Pediatric Bacterial Meningitis Surveillance Network, World Health Organization African Region, 2002–2008

Year	No. countries reporting	No. suspected meningitis cases	No. (%) suspected cases with lumbar puncture performed	No. (%) suspected cases with cerebrospinal fluid (CSF) result in database	No. (%) CSF specimens purulent§	No. (%) CSF specimens culture-positive for *H. influenzae*, *S. pneumoniae*, or *N. meningitidis*	No. (%)¶ CSF specimens culture-positive for *S. pneumoniae*	No. (%)¶ CSF specimens culture-positive for *H. influenzae*	No. (%)¶ CSF specimens culture-positive for *N. meningitidis*
2002	23	6,715	6,380 (95)	5,650 (89)	1,151 (20)	738 (13)	336 (6)	281 (5)	121 (2)
2003	24	12,397	12,043 (97)	10,898 (90)	1,880 (17)	873 (8)	440 (4)	344 (3)	89 (1)
2004	23	12,341	11,762 (95)	11,417 (97)	1,733 (15)	800 (7)	392 (3)	260 (2)	148 (1)
2005	24	14,583	14,089 (97)	13,666 (97)	1,942 (14)	718 (5)	346 (3)	270 (2)	102 (1)
2006	23	10,780	10,533 (98)	10,429 (99)	1,320 (13)	601 (6)	295 (3)	162 (2)	144 (1)
2007	23	8,847	8,721 (99)	8,637 (99)	1,075 (12)	446 (5)	204 (2)	120 (1)	122 (1)
2008	22	8,852	8,583 (97)	8,511 (99)	1,026 (12)	498 (6)	179 (2)	138 (2)	181 (2)
Total	**24**	**74,515**	**72,111 (97)**	**69,208 (96)**	**10,127 (15)**	**4,674 (7)**	**2,192 (3)**	**1,575 (2)**	**907 (1)**

* All children aged 0–59 months with an illness meeting the standardized case definition for meningitis were reported as suspected cases. Meningitis was defined as sudden onset of fever and one or more of the following clinical symptoms or signs of meningitis: seizures other than febrile seizures, neck stiffness, bulging fontanel (in children aged <12 months), poor sucking, altered consciousness, irritability, other meningeal signs, toxic appearance, or petechial or purpuric rash.

† *H. influenzae* isolates were not routinely serotyped and are assumed to be type b based on previous evidence suggesting that >90% of *H. influenzae* isolates before vaccine introduction are type b. (World Health Organization. Global literature review of *Haemophilus influenzae* type b and *Streptococcus pneumoniae* invasive disease among children less than five years of age 1980–2005. Geneva, Switzerland: Department of Vaccines and Biologicals, World Health Organization; 2009. Available at http://whqlibdoc.who.int/hq/2009/who_ivb_09.02_eng.pdf.)

§ Specimens classified as purulent if they had turbid appearance or a white blood cell count ≥100 cells/mm³.

¶ Percentage represents culture-positive specimens among all suspected cases with CSF results entered in the database. The majority of culture results were negative for pathogens other than the three under surveillance.

cases, and cerebrospinal fluid (CSF) specimens are collected and cultured for bacterial infection. *H. influenzae* isolates are not serotyped routinely and are assumed to be type b based on previous evidence suggesting that >90% of *H. influenzae* isolates before vaccine introduction are type b (*4*). Case data are analyzed locally and then forwarded to ministries of health and country and regional WHO offices.

Surveillance Performance

Four clinical and laboratory indicators were developed to assess the performance of the network in each country.[††] In 2001, the number of participating countries reporting was 26; in 2003 the number was 24, and in 2008, 22. In 2002, the first full year after training, three (14%) of the 23 participating countries were high performers (meeting three or more indicators), four (18%) were medium performers (meeting two or more indicators), and 16 (70%) were low performers (meeting one or fewer indicators). In 2008, of the 22 countries reporting to the network, 14 (64%) were high performers, six (27%) were medium performers, and two (9%) were poor performers.

Network Findings

During 2002–2008, a total of 74,515 cases of suspected bacterial meningitis were reported to the PBM network (Table). Of these, 72,111 (97%) had a lumbar puncture performed, and 69,208 (96%) had CSF results logged into the database. Of those with known CSF results, 4,674 (7%) were culture-positive for the three bacterial infections under surveillance: 2,192 (47%) for *S. pneumoniae*, 1,575 (34%) for *H. influenzae*, and 907 (19%) for *N. meningitidis*. The majority of the remaining 64,534 CSF results logged into the database were culture-negative, including 5,453 (54%) of the 10,127 purulent specimens (i.e., those with turbid appearance or ≥100 white blood cells/mm³) (*5*).

Integration with Rotavirus Surveillance

Of the 14 countries in the African Region conducting sentinel site surveillance for rotavirus diarrhea, nine (64%) have integrated rotavirus diarrhea surveillance activities with PBM surveillance. Areas of integration include 1) case identification through shared hospital sentinel site staffing, 2) data reporting (integrated data management tools) and feedback mechanisms from WHO regional office to country and sentinel site staff, and 3) use of laboratory equipment and technicians for performing diagnostic procedures.

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†† 1) percentage of patients in clinically suspected cases who received a lumbar puncture (target: 80%), 2) percentage of lumbar punctures performed for which results were recorded in the database (target: 90%), 3) percentage of specimens of purulent cerebrospinal fluid that showed bacterial growth (target: 20%), and 4) number of months for which reports were made each year (target: ≥8 months); meeting this indicator is required to obtain a medium or high performance level. High performers met three or more indicators, medium performers met two indicators, and poor performers met one or fewer indicators.

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Editorial Note: The PBM Network was launched to provide participating countries with local data that might aid in decisions regarding introduction of new vaccines against bacterial infections. Gambia introduced Hib vaccine in 1993; 18 other countries with staffs trained to conduct PBM surveillance in the African Region introduced Hib vaccine by the end of 2008[§§] (*2*). PBM network countries will be considering introduction of pneumococcal vaccine with support from the GAVI Alliance during the next few years[¶¶] (*3*); countries in the meningococcal epidemic-prone regions of Sub-Saharan Africa also will be considering the new serogroup A conjugate meningococcal vaccine when available.*** Although reporting quality varied during 2002–2008, the network generated data on the epidemiology of *H. influenzae* that was useful in some countries for making decisions regarding the introduction and sustained use of Hib vaccine. In these countries, data provided information on trends in *H. influenzae* and purulent meningitis and the effectiveness of Hib vaccine against bacterial meningitis (*6–8*; Agence de Medecine Preventive, unpublished data, 2008). High performing countries might be capable of producing similar data for *S. pneumoniae* and *N. meningitidis* infections, but the majority of PBM network countries will require additional support and training before PBM data can be fully utilized for interpreting disease trends and assessing the impact of Hib, pneumococcal, and meningococcal vaccines.

This analysis identified a number of current limitations with the interpretations of the PBM surveillance data, some of which are related to country performance. Poor performance among network countries was most frequently related to reporting <8 months of surveillance data per year and a lower than expected number of culture-positive meningitis cases, two of the four performance indictors. Failure to attain these indicators can be attributed to high staff turnover, inconsistent adherence to standardized operating guidelines, and a diminishing prioritization for surveillance in some countries after successful Hib vaccine introduction. Many of the PBM sentinel hospitals lacked necessary laboratory reagents, and patients often received antibiotics before arriving at the sentinel hospital, greatly diminishing the sensitivity of CSF cultures and likely contributing to the low culture yields for the three bacterial infections under surveillance and the high percentage of purulent but culture-negative CSF specimens.

Conducting sentinel surveillance only in pediatric referral hospitals has additional limitations, including the possibility of failing to detect disease because of 1) referral practices, 2) pretreatment with antibiotics, 3) being unable to identify epidemic diseases such as meningococcal disease that might occur in rural communities located far from the PBM sentinel hospital sites. Furthermore, sentinel surveillance frequently is unable to generate disease burden estimate or provide national or regional serotype distribution of bacterial infections under surveillance.

To improve surveillance quality, especially rates of pathogen isolation, an accreditation system tailored for network laboratories is needed. Reference laboratories in each of the three African subregions will be required to ensure high quality surveillance data for confirmation and serotyping of bacterial pathogens, especially following pneumococcal vaccine introduction. These reference laboratories can complement the External Quality Assurance program[†††] initially introduced for the region's Public Health Laboratories and now expanded to include the PBM network. Efforts to establish a procurement system for supplying standardized laboratory supplies and reagents for PBM surveillance activities are likely to improve pathogen isolation rates at all sites. Introduction of polymerase chain reaction assays and other laboratory procedures also might increase the yield. Staffs in high performing countries also will require training in culturing blood specimens to better define the importance of *S. pneumoniae* pneumonia and sepsis-related disease in the region.

To obtain accurate information on disease burden, WHO's African Office is considering the feasibility of conducting active, population-based surveillance at a few sentinel sites. These sites will have pediatric population data for children served by the sentinel hospitals, and therefore, will be able to generate disease incidence for the three bacterial infections under surveillance. Additionally, WHO's African Regional Office is working with ministry of health staffs to identify prospective sentinel sites in the Democratic Republic of Congo and Nigeria. These two countries account for approximately 783 million persons, or 26% of the population in the African Region. Two or three participating sentinel hospitals in each of these countries will collect disease information from large pediatric populations that will contribute to understanding the epidemiology of meningitis in the region. Network expansion efforts should continue to identify and take advantage of

[§§] In addition to Gambia, countries that introduced Hib vaccine before the end of 2008 were Benin, Burkina Faso, Burundi, Eritrea, Ethiopia, Ghana, Guinea, Kenya, Malawi, Mali, Niger, Rwanda, Senegal, Sierra Leone, Togo, Uganda, Zambia, and Zimbabwe.

[¶¶] Among the PBM network countries, Rwanda introduced pneumococcal vaccine in early 2009, Gambia is scheduled to introduce the vaccine in mid-2009, and Kenya has been approved by GAVI for introduction in 2010.

*** Epidemic-prone countries will be considering introduction of serogroup A conjugate meningococcal vaccine initially for use in mass vaccination campaigns in Africa. This vaccine has the advantage of inducing 1) immunity in young children, 2) long-term immunity, and 3) herd immunity. Information available at http://www.meningvax.org.

[†††] Information available at http://whqlibdoc.who.int/hq/2007/who_cds_epr_lyo_2007.3_eng.pdf.

linkages for integration in supporting surveillance for diseases prevented by other new vaccines such as rotavirus (*9*).

In launching PBM surveillance, the WHO African Regional Office in collaboration with global immunization partners has developed and promoted standardized guidelines, case definitions, laboratory protocols, and a uniform reporting mechanism; these are critical components for realizing a coordinated and long-term strategy for surveillance and immunization policy against invasive bacterial infections. Strengthening laboratory and data management capacity will be critical to ensure quality surveillance data in the future. Ultimately, the network's usefulness will depend on increasing local ownership of PBM surveillance, facilitating data use by ministries of health, and incorporating surveillance activities into national fiscal and program plans.

Acknowledgments

This report is based, in part, on the contributions of staff members of the Pediatric Bacterial Meningitis Surveillance Network and ministries of health in Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Eritrea, Ethiopia, Gambia, Ghana, Kenya, Malawi, Mali, Mozambique, Namibia, Niger, Rwanda, Senegal, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe.

References

1. Peltola H. Worldwide *Haemophilus influenzae* type b disease at the beginning of the 21st century: global analysis of the disease burden 25 years after the use of the polysaccharide vaccine and a decade after the advent of conjugates. Clin Microbiol Rev 2000;13:302–17.
2. CDC. Progress toward introduction of *Haemophilus influenzae* type b vaccine in low-income countries—worldwide, 2004–2007. MMWR 2008;57:148–51.
3. CDC. Progress in introduction of pneumococcal conjugate vaccine—worldwide, 2000–2008. MMWR 2008;57:1148–51.
4. World Health Organization. Global literature review of *Haemophilus influenzae* type b and *Streptococcus pneumoniae* invasive disease among children less than five years of age 1980–2005. Geneva, Switzerland: World Health Organization; 2009. Available at http://whqlibdoc.who.int/hq/2009/who_ivb_09.02_eng.pdf.
5. Bennett JV, Platonov AE, Slack M, Mala P, Burton AH, Robertson SE. *Haemophilus influenzae* type b (Hib) meningitis in the pre-vaccine era: a global review of incidence, age distributions, and case-fatality rates. Geneva, Switzerland: Department of Vaccines and Biologicals, World Health Organization; 2002. Available at http://www.who.int/vaccines-documents.
6. Lewis RF, Kisakye A, Gessner B, et al. Action for child survival: elimination of *Haemophilus influenzae* type B meningitis in Uganda. Bull World Health Organ 2008;86:292–301.
7. Daza P, Banda R, Misoya K, et al. The impact of routine infant immunization with *Haemophilus influenzae* type b conjugate vaccine in Malawi, a country with high immunodeficiency virus prevalence. Vaccine 2006;24:6232–9.
8. Muganga N, Uwimana J, Fidele N, at al. *Haemophilus influenzae* type b conjugate vaccine impact against purulent meningitis in Rwanda. Vaccine 2007;25:7001–5.
9. World Health Organization. Global framework for immunization monitoring and surveillance (GFIMS). Geneva, Switzerland: World Health Organization; 2007.

Novel Influenza A (H1N1) Virus Infections in Three Pregnant Women — United States, April–May 2009

On May 12, this report was posted as an MMWR Dispatch *on the* MMWR *website* (http://www.cdc.gov/mmwr).

CDC first identified cases of respiratory infection with a novel influenza A (H1N1) virus in the United States on April 15 and 17, 2009 (*1*). During seasonal influenza epidemics and previous pandemics, pregnant women have been at increased risk for complications related to influenza infection (*2–5*). In addition, maternal influenza virus infection and accompanying hyperthermia place fetuses at risk for complications such as birth defects and preterm birth (*6*). As part of surveillance for infection with the novel influenza A (H1N1) virus, CDC initiated surveillance for pregnant women who were infected with the novel virus. As of May 10, a total of 20 cases of novel influenza A (H1N1) virus infection had been reported among pregnant women in the United States, including 15 confirmed cases and five probable cases.* Among the 13 women from seven states for whom data are available, the median age was 26 years (range: 15–39 years); three women were hospitalized, one of whom died. This report provides preliminary details of three cases of novel influenza A (H1N1) virus infection in pregnant women. Pregnant women with confirmed, probable, or suspected novel influenza A (H1N1) virus infection should receive antiviral treatment for 5 days. Oseltamivir is the preferred treatment for pregnant women, and the drug regimen should be initiated within 48 hours of symptom onset, if possible. Pregnant women who are in close contact with a person with confirmed, probable, or suspected novel influenza A (H1N1) infection should receive a 10-day course of chemoprophylaxis with zanamivir or oseltamivir.

Case Reports

Patient A. On April 15, a woman aged 33 years at 35 weeks' gestation with a 1-day history of myalgias, dry cough, and low-grade fever was examined by her obstetrician-gynecologist. She had been in relatively good health and had been taking no medications other than prenatal vitamins, although she had a history of psoriasis and mild asthma. The patient had not recently traveled to Mexico. Rapid influenza diagnostic testing performed in the physician's office was positive.

On April 19, she was examined in a local emergency department, with worsening shortness of breath, fever, and productive cough. She experienced severe respiratory distress, with

* Case definitions available at http://www.cdc.gov/h1n1flu/casedef.htm.

an oxygen saturation of approximately 80% on room air and a respiratory rate of approximately 30 breaths per minute. A chest radiograph revealed bilateral nodular infiltrates. The patient required intubation and was placed on mechanical ventilation. On April 19, an emergency cesarean delivery was performed, resulting in a female infant with Apgar scores of 4 at 1 minute after birth and of 6 at 5 minutes after birth; the infant is healthy and has been discharged home. On April 21, the patient developed acute respiratory distress syndrome (ARDS). The patient began receiving oseltamivir on April 28. She also received broad-spectrum antibiotics and remained on mechanical ventilation. The patient died on May 4.

On April 25, a nasopharyngeal swab specimen collected from patient A indicated an unsubtypable influenza A strain by real-time reverse transcription–polymerase chain reaction (rRT-PCR) at the San Antonio Metro Health Laboratory. The specimen was forwarded to the Virus Surveillance and Diagnostic Branch Laboratory, Influenza Division, CDC, where testing was inconclusive for novel influenza A (H1N1) virus. On April 30, a repeat nasopharyngeal specimen was collected, which was positive by rRT-PCR for novel influenza A (H1N1) virus at CDC.

Patient B. A previously healthy woman aged 35 years at 32 weeks' gestation was seen at a local emergency department on April 20 with a 1-day history of shortness of breath, fever, cough, diarrhea, headache, myalgias, sore throat, and inspiratory chest pain. She was febrile (101.6°F [38.7°C]), with a heart rate of 128 beats per minute, respiratory rate of 22 breaths per minute, and oxygen saturation of >97% on room air. A chest radiograph was normal. Rapid influenza diagnostic testing was negative. The patient received a parenteral nonsteroidal anti-inflammatory medication, acetaminophen, and inhaled albuterol and was discharged home. She was evaluated the following day in her obstetrician-gynecologist's office, where a nasopharyngeal swab sample was collected and sent for rRT-PCR testing. The patient received antibiotics, antinausea medication, acetaminophen, and an inhaled corticosteroid. The patient recovered fully, and her pregnancy is proceeding normally.

Patient B had been in Mexico during the 3 days preceding her arrival at the emergency department. Several family members in Mexico and the United States had recently been ill with influenza-like illness, and her sister had been hospitalized for pneumonia during the preceding week. Testing of the nasopharyngeal swab specimen from patient B collected on April 21 was identified as an unsubtypable influenza A strain by rRT-PCR testing at the Naval Health Research Laboratory in San Diego. Additional testing at CDC confirmed infection with novel influenza A (H1N1) virus.

Patient C. On April 29, a woman aged 29 years at 23 weeks' gestation was experiencing cough, sore throat, chills, subjective fever, and weakness of 1 day's duration and was seen at the family practice clinic where she had been receiving prenatal care. The patient had a history of asthma but was not taking any asthma medications. Her son, aged 10 years, reportedly had similar symptoms the week before the onset of her symptoms. Another son, aged 7 years, had become ill on the same day as his mother and accompanied her to the clinic. At the clinic, the younger son was coughing vigorously and was asked to put on a mask by office staff members. Rapid influenza diagnostic testing in the family practice clinic of a nasopharyngeal sample from patient C was positive. The woman was prescribed oseltamivir, which she began taking later the same day. Her symptoms are resolving without complications, and her pregnancy is proceeding normally.

Patient C had not traveled to Mexico recently. Her son aged 7 years also was prescribed oseltamivir on April 29 but was not tested for influenza. The physician who evaluated patient C was also pregnant (13 weeks' gestation). The physician began chemoprophylaxis with oseltamivir and has remained asymptomatic.

A nasopharyngeal swab collected from patient C on April 29 was identified as an unsubtypable influenza A strain by the Washington State Public Health Laboratory. Additional testing at CDC confirmed infection with novel influenza A (H1N1) virus.

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Editorial Note: This report provides preliminary details on three cases of novel influenza A (H1N1) virus infection in pregnant women. Additional information on these cases and other pregnant women with this infection is being compiled by CDC based on reports from state health departments. The three pregnant women described in this report all initially had symptoms of acute febrile respiratory illness similar to the clinical symptoms in nonpregnant women with the infection; one patient (patient A) developed ARDS and died. The most frequently reported symptoms among nonpregnant patients with novel influenza A (H1N1) virus infection have been fever, cough, and sore throat (*1*).

Although data are insufficient to determine who is at highest risk for complications of novel influenza A (H1N1) virus infection, seasonal influenza epidemics (*2,3*) and previous influenza pandemics (*4,5*) have shown that pregnant women generally are at higher risk for influenza-associated morbidity and mortality compared with women who are not pregnant. The increased risk of complications is thought to be related to several physiologic changes that occur during pregnancy, including alterations in the cardiovascular, respiratory, and immune systems (*7*). Pregnant women with underlying medical conditions such as asthma are at particularly high risk for influenza-related complications (*2*). Because pregnant women are at increased risk for influenza complications, the Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists have recommended that women receive the trivalent inactivated influenza vaccine (*8*).

The novel influenza A (H1N1) virus that is circulating is susceptible to the neuraminidase inhibitor antiviral medications, oseltamivir and zanamivir (*1*). In randomized, placebo-controlled trials among outpatients, these medications have reduced the severity and duration of symptoms of seasonal influenza if started within 48 hours of illness onset, and limited data from observational studies among hospitalized patients with seasonal influenza indicate that oseltamivir can reduce mortality, even when started >48 hours after illness onset (*8*). In addition, oseltamivir and zanamivir have been highly effective in preventing seasonal influenza if used shortly after exposure to the disease (*8*). Little information is available on the safety or effectiveness of these medications when used during pregnancy (*9,10*). However, considering the limited information available and the known risks for influenza complications during pregnancy, any potential risk to a fetus likely is outweighed by the expected benefits of influenza antiviral treatment for this novel virus. Thus, CDC interim guidance indicates that pregnant women with confirmed, probable, or suspected novel influenza A (H1N1) virus infection should receive antiviral treatment for 5 days.[†]

Although zanamivir can be used in pregnancy, oseltamivir is preferred for treatment of pregnant women because of its systemic absorption (*10*). Theoretically, higher systemic absorption might suppress influenza viral loads more effectively in sites other than the respiratory system (e.g., placenta) and might provide better protection against mother-child transmission. Similar to the recommendation for nonpregnant persons who are treated, oseltamivir treatment should be initiated as soon as possible, ideally within 48 hours of onset of symptoms. In addition, any pregnant woman hospitalized with confirmed, probable, or suspected novel influenza A (H1N1) virus infection should receive oseltamivir, even if >48 hours have elapsed since illness onset (*8*). Beginning treatment as early as possible is critical. In addition, treating fevers in pregnant women with acetaminophen is important because maternal hyperthermia has been associated with various adverse fetal and neonatal outcomes (*6*).

In all clinical settings, including settings that provide care for pregnant women, patients should be screened for signs and symptoms of febrile respiratory illness at the initial point of contact, and these patients should be promptly segregated and assessed. Outpatient clinical settings and labor and delivery units should develop and implement procedures for handling patients with respiratory illness and friends or family members who might accompany them. Pregnant women who are in close contact with a person who has a confirmed, probable, or suspected case should receive a 10-day course of chemoprophylaxis with zanamivir or oseltamivir. For chemoprophylaxis in pregnant patients, a preferred anti-influenza medication has not been determined. Although zanamivir might have the benefit of more limited systemic absorption (*9*), respiratory symptoms such as coughing or severe nasal congestion might limit its usefulness because of its inhaled route of administration. The pregnant physician caring for patient C began chemoprophylaxis soon after exposure.

Because of the increased risk for severe complications, the public health response to outbreaks of novel influenza A (H1N1) virus should include considerations specific to pregnant women. Interim guidance on issues specific to pregnant women and the novel influenza A (H1N1) virus is available at http://www.cdc.gov/h1n1flu/clinician_pregnant.htm. Additional information regarding novel influenza A (H1N1) virus is available at http://www.cdc.gov/h1n1flu. Clinicians should report cases of novel influenza A (H1N1) virus infection in pregnant women to their state or local health departments or CDC.

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References

1. Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team. Emergence of a novel swine-origin influenza A (H1N1) virus in humans. N Engl J Med 2009;361. [E-pub ahead of print].
2. Dodds L, McNeil SA, Fell DB, et al. Impact of influenza exposure on rates of hospital admissions and physician visits because of respiratory illness among pregnant women. CMAJ 2007;176:463–8.

[†] Guidance available at http://www.cdc.gov/h1n1flu/clinician_pregnant.htm.

3. Neuzil KM, Reed GW, Mitchel EF, Simonsen L, Griffin MR. Impact of influenza on acute cardiopulmonary hospitalizations in pregnant women. Am J Epidemiol 1998;148:1094–102.
4. Freeman DW, Barno A. Deaths from Asian influenza associated with pregnancy. Am J Obstet Gynecol 1959;78:1172–5.
5. Harris JW. Influenza occurring in pregnant women. JAMA 1919;72: 978–80.
6. Rasmussen SA, Jamieson DJ, Bresee JS. Pandemic influenza and pregnant women. Emerg Infect Dis 2008;14:95–100.
7. Jamieson DJ, Theiler RN, Rasmussen SA. Emerging infections and pregnancy. Emerg Infect Dis 2006;12:1638–43.
8. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2008. MMWR 2008;57(No. RR-7).
9. Freund B, Gravenstein S, Elliott M, Miller I. Zanamivir: a review of clinical safety. Drug Saf 1999;21:267–81.
10. Ward P, Small I, Smith J, Suter P, Dutkowski R. Oseltamivir (Tamiflu) and its potential for use in the event of an influenza pandemic. J Antimicrob Chemother 2005;55(Suppl 1):i5–21.

Outbreak of *Salmonella* Serotype Saintpaul Infections Associated with Eating Alfalfa Sprouts — United States, 2009

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

On February 24, 2009, the Nebraska Department of Health and Human Services identified six isolates of *Salmonella* serotype Saintpaul with collection dates from February 7–14. *Salmonella* Saintpaul is not a commonly detected serotype; during 2008, only three *Salmonella* Saintpaul isolates were identified in Nebraska. This report summarizes the preliminary results of the investigation of this outbreak, which has identified 228 cases in 13 states and implicated the source as alfalfa sprouts produced at multiple facilities using seeds that likely originated from a common grower. On April 26, the Food and Drug Administration (FDA) and CDC recommended that consumers not eat raw alfalfa sprouts, including sprout blends containing alfalfa sprouts, until further notice. On May 1, FDA alerted sprout growers and retailers that a seed supplier was withdrawing voluntarily from the market all lots of alfalfa seeds with a specific three-digit prefix.

Initial Outbreak Investigation

For this investigation, a case was defined as illness in a person whose stool culture on or after February 1, 2009, yielded *Salmonella* Saintpaul with the outbreak strain pulsed-field gel electrophoresis (PFGE) patterns (*Xba*I JN6X01.0072, JN6X01.0252, JN6X01.0340, JN6X01.0709, JN6X01.0712, JN6X01.0718, or JN6X01.0719). During January 1, 2008 to January 31, 2009, only four cases of the outbreak strain of *Salmonella* Saintpaul were identified by PulseNet.*

After a nationwide notice was sent February 26 to state public health officials about a cluster of cases of *Salmonella* Saintpaul infection among Nebraska residents; additional cases were reported from Iowa, Kansas, Minnesota, Missouri, and South Dakota. Interviews showed that five of 14 Nebraska patients patronized a common restaurant chain (chain A) and that nine had recently eaten alfalfa sprouts. Among the first seven Iowa case-patients interviewed, one had eaten at restaurant chain A, and six had eaten alfalfa sprouts. Alfalfa sprouts was the most common food item reported.

To determine if a particular food item or restaurant was associated with this outbreak, health officials in Nebraska and Iowa conducted a case-control study. They attempted to identify two controls for each case; a well spouse or partner of the case-patient, and a well friend or colleague of the same sex and similar age as the case-patient. Food consumption histories, including restaurants patronized, were collected from case-patients for the 10 days before symptoms began and from controls for the matching period.

Thirty-two confirmed cases and 32 controls were enrolled. Case-patients were significantly more likely to have eaten alfalfa sprouts than matched controls (27/32 versus 5/32, crude odds ratio [OR] = 29.2, 95% confidence interval [CI] = 7.6–112.4). No other food item was significantly associated with illness. Case-patients were significantly more likely to have eaten at restaurant chain A than were controls (24/32 versus 10/32, OR = 6.6, CI = 1.96–22.93), but this association was not statistically significant after adjustment for exposure to alfalfa sprouts.

By March 19, a total of 186 cases had been identified in Illinois, Iowa, Kansas, Minnesota, Nebraska, and South Dakota. Of the 156 patients with completed interviews, 114 (73%) reported alfalfa sprout consumption.

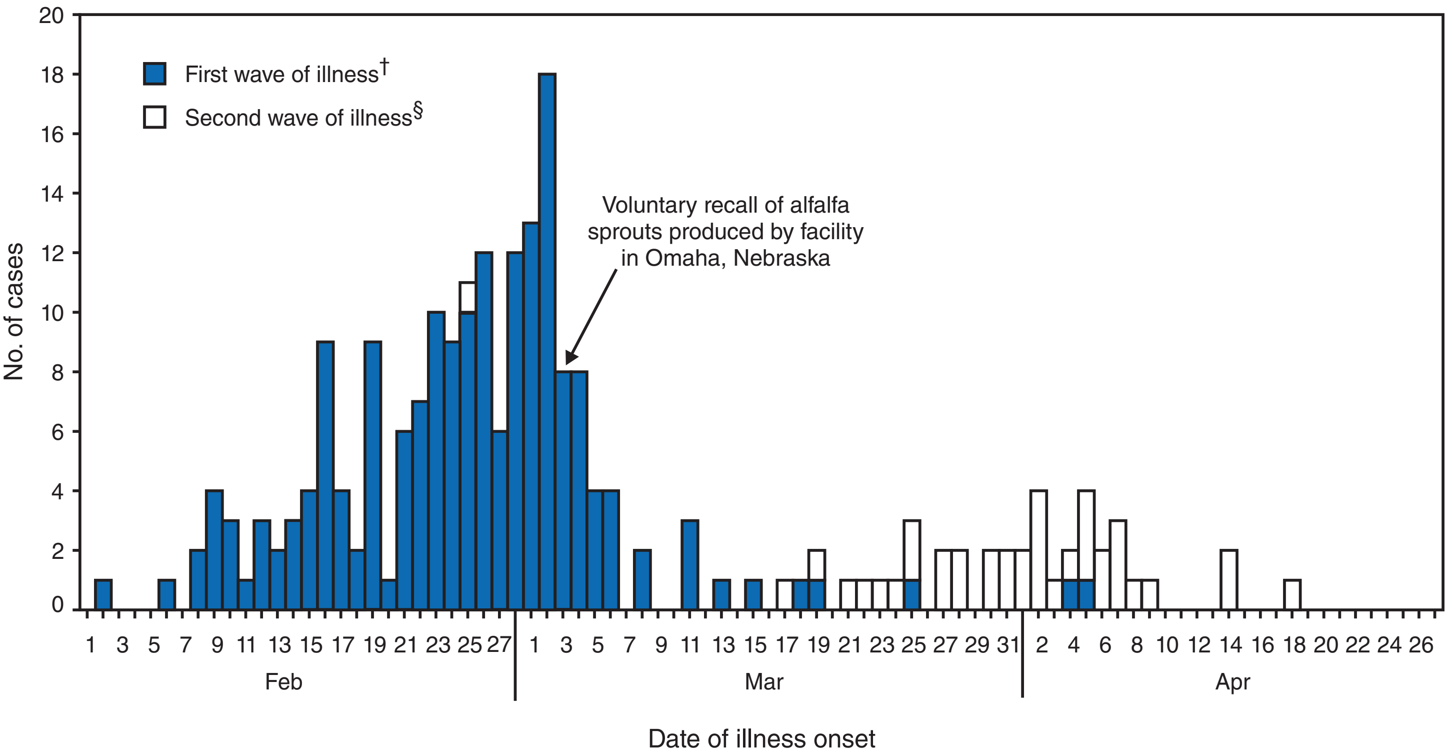
Linking Cases to a Single Seed Grower

Tracebacks from the initial outbreak investigation indicated that although the sprouts had been distributed by various companies, all originated at the same sprouting facility in Omaha, Nebraska (facility A). Of the 114 patients with reported alfalfa sprout exposure, 112 (98%) could be linked to a restaurant or a retail outlet that had received alfalfa sprouts from facility A. On March 3, 2009, facility A agreed to conduct a voluntary recall.

Facility A produces several types of sprouts, including alfalfa, clover, radish, broccoli, and onion, and distributes those to locations within a 250-mile radius. Facility A reported that

*The national molecular subtyping network for foodborne disease surveillance.

FIGURE 1. Number of infections (N = 226*) with the outbreak strain of *Salmonella* Saintpaul associated with eating alfalfa sprouts, by date of illness onset — United States, February–April 2009



* Onset dates were unavailable for two patients among a total of 228 cases.
† Infections first and primarily occurred in Illinois, Iowa, Kansas, Nebraska, and South Dakota.
§ Additional infections occurred in Florida, Michigan, Minnesota, North Carolina, Ohio, Pennsylvania, North Carolina, Utah, and West Virginia, primarily after March 15.

it produced sprouts following FDA guidance for reducing microbial food safety hazards for sprouted seeds (*1*). This included soaking alfalfa seeds for 15 minutes in a 20,000 ppm chlorine solution derived from calcium hypochlorite. The seeds were then rinsed and placed in germination containers; after 48 hours, seed irrigation water was cultured for *Salmonella* and *Escherichia coli* O157. The facility reported that it had no positive test results during January–February 2009.

An evaluation of records correlated the outbreak with the distribution of sprouts from a seed shipment that arrived at the facility on January 13, and last sprouted on February 13. Multiple seed lots, purchased only from seed company B, were used for producing alfalfa sprouts during the period of the outbreak; all seed lots were identified with the prefix 032, indicating that they originated from the same seed grower (grower C). A sample of facility A alfalfa sprouts collected from a Nebraska restaurant on February 28, 2009, grew *Salmonella* serotype Typhimurium. A sample of alfalfa seeds collected at facility A on March 3 and identified with the lot prefix 032 grew *Salmonella* serotype Give.

In mid-April, 42 additional case-patients with onset of illness beginning after March 15 were identified from Florida, Iowa, North Carolina, Michigan, Minnesota, Nebraska, Ohio, Pennsylvania, Utah, and West Virginia (Figure 1). At least 20 of these case-patients reported recently eating sprouts. Alfalfa sprouts eaten by these case-patients were traced back to growing facilities in Michigan, Minnesota, and Pennsylvania that received seed lots identified with prefix 032 from seed company B. Alfalfa sprout irrigation water collected on March 10 from a growing facility in Wisconsin grew *Salmonella* Saintpaul indistinguishable from the outbreak strain. These sprouts also were grown from a seed lot identified with prefix 032 received from seed company B. No human illnesses have been linked to the Wisconsin facility. Preliminary findings indicate that the implicated seed lots were sold in many states and might account for a large proportion of the alfalfa seeds that were being used by sprout growers during this outbreak.

Since February 1, a total of 228 cases have been reported from 13 states: Nebraska (110 cases), Iowa (35), South Dakota (35), Michigan (18), Kansas (eight), Pennsylvania (seven), Minnesota (five), Ohio (three), Illinois (two), West Virginia (two), Florida (one), North Carolina (one), and Utah (one) (Figure 2). Patients range in age from <1 year to 85 years (median: 29 years); 69% are female. Among patients with available information, 4% reported being hospitalized. No deaths have been reported.

On April 26, FDA and CDC recommended that consumers not eat raw alfalfa sprouts, including sprout blends containing alfalfa sprouts, until further notice (*2*). On May 1, FDA notified sprout growers and retailers that seed company B was withdrawing voluntarily from the market all alfalfa seeds bearing six-digit lot numbers that start with 032 (*3*).

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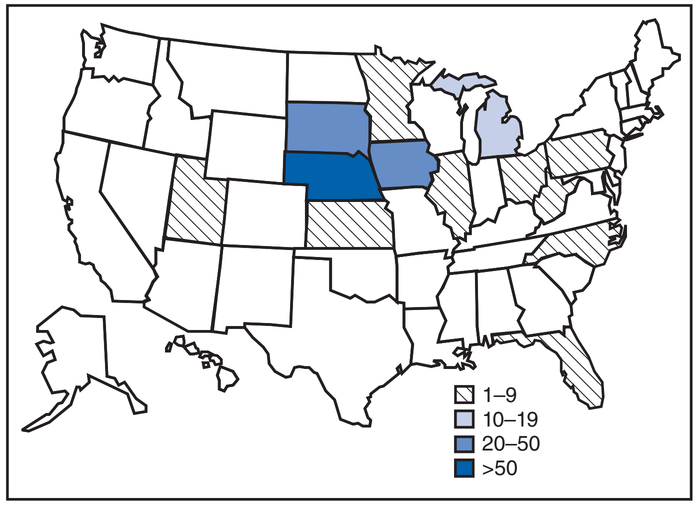
Editorial Note: Raw and lightly cooked sprouts have been recognized as a source of foodborne illness in the United States since 1995 (*4,5*). In 1999, FDA released guidance to help seed producers and sprout growers enhance the safety of their products (*1,4*). Specific measures recommended in the guidelines include seed disinfection and microbiologic tests of water used to grow sprouts (*1,6*).

Although the methods recommended by FDA appear to reduce the risk of sprout-related human illness (*7*), CDC's electronic Foodborne Outbreak Surveillance System has reports of 13 *Salmonella* and three *E. coli* O157 outbreaks linked to sprouts from 2000 through 2007. Process failures, including inadequate disinfection, sampling, and testing procedures, and incorrect interpretation of test results, have been identified in some of these investigations.

The outbreak described in this report is linked to consumption of alfalfa sprouts produced at several sprout growers and appears to involve only seeds sold by seed company B that originated from grower C. This strongly suggests that the seeds were contaminated. The degree to which the various sprout growers involved have appropriately and consistently implemented FDA recommendations or other protective methods is under investigation. These outbreaks might indicate a need to determine how well this important but voluntary guidance is being implemented. Additional studies of measures to prevent, detect, and eliminate contamination of seeds and sprouts also are needed.

FIGURE 2. Number of infections (N = 228*) with the outbreak strain of *Salmonella* Saintpaul, associated with eating alfalfa sprouts, by state — United States, February–April 2009



* As of May 1, 2009.

Alfalfa seeds might become contaminated in several ways, although the exact method is unknown. Possible methods include preharvest contamination from use of contaminated water, the use of improperly composted manure as fertilizer, fecal contamination from domestic or wild animals, runoff from animal production facilities, and improperly cleaned harvesting or processing equipment. Seeds also might become contaminated during conditioning, distribution, or improper storage. Many alfalfa seeds are produced for agricultural use, and might not be processed, handled, and stored under conditions appropriate for human food. Conditions suitable for sprouting also are ideal for markedly increasing counts of bacteria that might be present on seeds (*8*). Unsanitary conditions during processing, storage, distribution, handling, or preparation of sprouts could exacerbate the problem.

Since 1999, CDC and FDA have recommended that persons at high risk for complications of infection with *Salmonella* and *E. coli* O157, such as the elderly, young children, and those with compromised immune systems not eat raw sprouts. While investigations into the current outbreak continue, and until more specific recommendations or control measures can be implemented, FDA and CDC recommend not eating raw alfalfa sprouts, including sprout blends containing alfalfa sprouts. FDA recommends that any sprouts that are eaten should be cooked thoroughly (*9*).

Acknowledgments

The findings in this report are based on contributions by public health professionals who interviewed and collected data on the case-patients, and the collaborative efforts of 13 state health departments, multiple local health departments, several state departments of agriculture and food regulatory services, FDA, and consultants from the Enteric Diseases Epidemiology Branch, CDC.

References

1. Food and Drug Administration. Reducing microbial food safety hazards for sprouted seeds. College Park, MD: Food and Drug Administration; 1999. Available at http://www.cfsan.fda.gov/~dms/sprougd1.html.
2. Food and Drug Administration. Raw alfalfa sprouts linked to *Salmonella* contamination. College Park, MD: Food and Drug Administration; 2009. Available at http://www.fda.gov/bbs/topics/news/2009/new02001.html.
3. Food and Drug Administration. Raw alfalfa sprouts *Salmonella* serotype Saintpaul. College Park, MD: Food and Drug Administration; 2009. Available at http://www.fda.gov/oc/opacom/hottopics/alfalfasprouts.
4. Mahon BE, Ponka A, Hall WN, et al. An international outbreak of *Salmonella* infections caused by alfalfa sprouts grown from contaminated seeds. J Infect Dis 1997;175:876–82.
5. Taormina PJ, Beuchat LR, Slutsker L. Infections associated with eating seed sprouts: an international concern. Emerg Infect Dis 1999;5:626–34.
6. Food and Drug Administration. Sampling and microbial testing of spent irrigation water during sprout production. College Park, MD: Food and Drug Administration; 1999. Available at http://www.cfsan.fda.gov/~dms/sprougd2.html.
7. Gill CJ, Keene WE, Mohle-Boetani JC, et al. Alfalfa seed decontamination in a *Salmonella* outbreak. Emerg Infect Dis 2003;9:474–9.
8. Winthrop KL, Palumbo MS, Farrar JA, et al. Alfalfa sprouts and *Salmonella* Kottbus infection: a multistate outbreak following inadequate seed disinfection with heat and chlorine. J Food Prot 2003;66:13–7.
9. Food and Drug Administration. Consumers advised of risks associated with eating raw and lightly cooked sprouts. College Park, MD: Food and Drug Administration; 2002. Available at http://www.cfsan.fda.gov/~lrd/tpsprout.html.

Notice to Readers

National Hepatitis Awareness Month and World Hepatitis Day — May 19, 2009

May is National Hepatitis Awareness Month in the United States, and May 19 is World Hepatitis Day. Both events draw attention to the large but often underrecognized burden of disease and death associated with viral hepatitis and the importance of prevention and early detection. An estimated 4.5 million persons in the United States are living with chronic hepatitis B (HBV) or hepatitis C virus (HCV) infection, which together represent the major cause of chronic liver disease and liver cancer. In 2006, chronic viral hepatitis contributed to at least 15,000 deaths in the United States. Globally, hepatitis B and C also are health threats, killing approximately 1.5 million persons per year.

A comprehensive public heath approach comprising interventions to protect vulnerable populations from infection (e.g., vaccination and adoption of safe injection procedures) and timely screening and care for chronic HBV and HCV infection can reduce the health burden of viral hepatitis. Additional information about viral hepatitis is available at http://www.cdc.gov/hepatitis. Information about World Hepatitis Day activities is available at http://www.nvhr.org/WHD-2009.htm.

Notice to Readers

National Hepatitis B Initiative for Asian Americans/Native Hawaiian and Other Pacific Islanders

CDC and the U.S. Department of Health and Human Services, along with members of the National Task Force on Hepatitis B Expert Panel, have created a strategic plan, *Goals and Strategies to Address Chronic Hepatitis B in Asian Americans/Native Hawaiian and Other Pacific Islander Populations*, which addresses the disproportionate impact of chronic hepatitis B in these minority communities.

An estimated 1.4 million persons in the United States are living with chronic hepatitis B, and more than half are Asian Americans and Native Hawaiian and Other Pacific Islanders. These populations have the highest rates of chronic hepatitis B among all racial/ethnic groups in the United States and also a disproportionately high risk for liver cancer. The HBV infection-related death rate among Asian Americans and Native Hawaiian and Other Pacific Islanders is seven times greater than the rate among whites (CDC, unpublished data, 2007).

The strategic plan outlines the health education, screenings, care, and research needed to reduce and eventually eliminate chronic hepatitis B among Asian Americans and Native Hawaiian and Other Pacific Islanders. Additional information is available at http://www.omhrc.gov/templates/browse.aspx?lvl=2&lvlid=190.

Notice to Readers

National Emergency Medical Services Week — May 17–23, 2009

May 17–23 is National Emergency Medical Services Week, dedicated to bringing together local communities and medical personnel to promote safety and emphasize the services of emergency medical responders, such as paramedics, emergency medical technicians, and dispatchers. Emergency medical service (EMS) providers quickly assess and initiate treatment of patients with potentially life-threatening complications (*1*). Their services are particularly important for persons experiencing a heart attack or stroke. Approximately half of all heart attack and stroke patients arrive at the hospital by ambulance; others either drive themselves to the hospital or are driven by family and friends, delaying life-saving diagnosis and treatment that trained EMS personnel could provide (*2,3*). Immediate emergency transportation to a hospital and receipt of timely urgent care can reduce death and disability. Recognizing the warning signs and symptoms of heart attack and stroke and immediately calling 9-1-1 are critical to receiving rapid treatment by EMS.

More information about National Emergency Medical Services Week is available at http://www.acep.org/emsweek. Information about heart disease and stroke is available from CDC at http://www.cdc.gov/dhdsp and from the American Heart Association at http://americanheart.org.

References

1. Hankins DG, Luke A. Emergency medical service aspects of emergency cardiac care. Emerg Med Clin N Am 2005;23:1219–31.
2. Lloyd-Jones D, Adams R, Carnethon M, et al. Heart disease and stroke statistics—2009 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation 2009;119:e21–181.
3. McGinn AP, Rosamond WD, Goff DC Jr, Taylor HA, Miles JS, Chambless L. Trends in prehospital delay time and use of emergency medical services for acute myocardial infarction: experience in 4 US communities from 1987–2000. Am Heart J 2005;150:392–400.

Notice to Readers

Recreational Water Illness Prevention Week — May 18–24, 2009

The fifth annual National Recreational Water Illness (RWI) Prevention Week is May 18–24, 2009, the week before Memorial Day. The goal of National RWI Prevention Week is to highlight the importance of healthy swimming behaviors and prevent recreational water illness and injuries. RWIs are caused by ingesting, inhaling vapors of, or having contact with contaminated water in swimming pools, water parks, spas, interactive fountains, ponds, lakes, rivers, or oceans. Injuries can occur in or out of the water. During 2005–2006, a total of 78 outbreaks were identified, affecting 4,412 persons and resulting in 116 hospitalizations and five deaths (*1*). This year's observance focuses on prevention of injuries associated with pool chemicals.

Pool chemicals make recreational water safer by reducing pathogens; however, these same chemicals also can cause injuries if not properly stored or handled. A report in this issue of *MMWR* describes the epidemiology of pool chemical–associated injuries (*2*). These preventable injuries lead to an estimated 5,200 emergency department visits each year. Persons can be injured by inhaling fumes when opening pool chemical containers, attempting to predissolve pool chemicals, or handling these chemicals improperly. Persons also can be injured when failing to use appropriate personal protective equipment (e.g., by not wearing safety glasses and splashing pool chemicals into the eyes). Public pool operators and residential pool owners can protect themselves and swimmers by taking the following steps: 1) securing pool chemicals away from children and animals; 2) reading the product name and manufacturer's directions before each use; 3) using appropriate protective gear, such as safety glasses and gloves, when handling pool chemicals; and 4) never mixing chlorine products with each other, with acid, or with any other substance. A complete set of pool chemical–associated injury prevention recommendations is available at http://www.cdc.gov/healthyswimming/pdf/pool_chem_assoc_inj.pdf.

The best way the swimming public can help prevent RWIs this summer is to keep pathogens out of the pool in the first place. Swimmers can help protect themselves and others by following these simple healthy swimming steps: 1) do not swim with diarrhea; 2) do not swallow pool water, 3) practice good hygiene (e.g., shower with soap before swimming and wash hands after using the toilet or changing diapers); 4) take children on bathroom breaks often and change diapers often; 5) change diapers in a bathroom or diaper-changing area and not at poolside; and 6) wash children thoroughly with soap before they go swimming.

To help state and local health departments disseminate these messages to the public, CDC's Healthy Swimming Program has a new free brochure (*Healthy Swimming: Protect Yourself and Your Family Against Recreational Water Illnesses*) available in English and in Spanish. Ordering information is available from CDC online (http://www.cdc.gov/healthyswimming/brochure.htm) or by telephone (800-CDC-INFO [800-232-4636]). In addition, CDC has developed two new educational products to help raise community awareness: a video, *In the Swim of Things*, which describes RWIs and how to prevent them, and a 30-second public service announcement. Starting May 18, these items will be available for download at http://www.cdc.gov/healthyswimming.

References

1. CDC. Surveillance for waterborne disease and outbreaks associated with recreational water—United States 2005–2006. MMWR 2008;57 (No. SS-9).
2. CDC. Pool chemical–associated health events in public and residential settings—United States, 1983–2007. MMWR 2009;58:489–93.

Notice to Readers

Better Hearing and Speech Month — May 2009

Hearing loss occurs in as many as three of 1,000 live births annually (*1,2*). Without intervention at an early age, hearing loss can delay a person's speech, language, and social skills development, and academic achievement. Because of this, all infants should be screened for hearing loss no later than age 1 month, preferably before leaving the birth hospital. All states and territories now offer hearing screening for newborn babies. Any baby who does not pass the hearing screening should have a full hearing evaluation no later than age 3 months. Any child who has a confirmed hearing loss should be referred for needed medical tests and should begin intervention services no later than age 6 months (*3*). Following this 1-3-6 months plan can maximize communication and language development for affected children (*4,5*). Additional information is available at http://www.cdc.gov/ncbddd/ehdi. Educational materials on newborn and infant hearing are available free at http://www.cdc.gov/ncbddd/ehdi/edmaterials.htm.

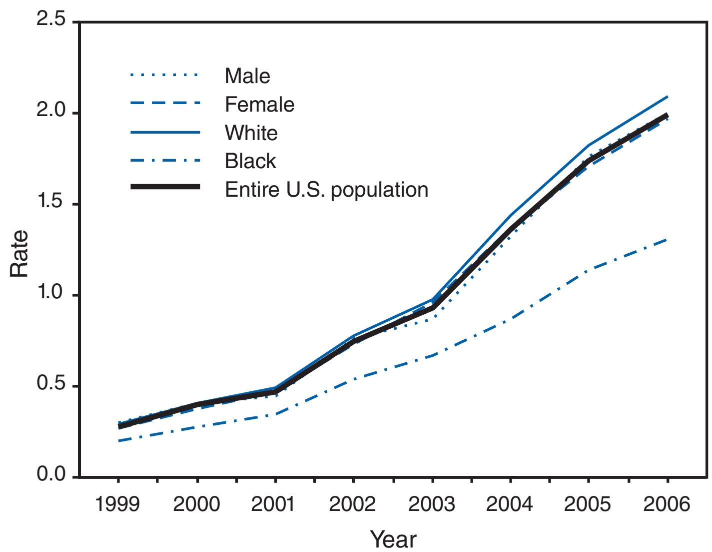
References

1. Finitzo T, Albright K, O'Neal J. The newborn with hearing loss: detection in the nursery. Pediatrics 1998;102:1452–60.
2. Van Naarden K, Decouflé P, Caldwell K. Prevalence and characteristics of children with serious hearing impairment in metropolitan Atlanta, 1991–1993. Pediatrics 1999;103:570–5.
3. Joint Committee on Infant Hearing. Year 2007 position statement: principles and guidelines for early hearing detection and intervention programs. Pediatrics 2007;120: 898–921.
4. Kennedy C, McCann D, Campbell MJ, Kimm L, Thornton R. Universal newborn screening for permanent childhood hearing impairment: an 8-year follow-up of a controlled trial. Lancet 2005;366:660–2.
5. Moeller MP. Early intervention and language development in children who are deaf and hard of hearing. Pediatrics 2000;106:e43. Available at http://pediatrics.aappublications.org/cgi/content/full/106/3/e43.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Age-Adjusted Death Rate* for Enterocolitis Due to *Clostridium difficile*, by Race and Sex — United States, 1999–2006



* Per 100,000 U.S standard population.

Enterocolitis due to *Clostridium difficile* is an inflammation of the intestines that is predominantly associated with antibiotic use. From 1999 to 2006, the age-adjusted death rate for this disease increased an average of approximately 30% per year for both men and women and the white and black populations. Approximately 90% of deaths occurred in persons aged ≥65 years.

SOURCE: Heron MP, Hoyert DL, Murphy SL, Xu JQ, Kochanek KD, Tejada-Vera B. Deaths: final data for 2006. Natl Vital Stat Rep 2009;57(14). Hyattsville, MD: US Department of Health and Human Services, CDC; 2009. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_14.pdf.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending May 9, 2009 (18th 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	—	6	0	17	32	20	19	16	
infant	—	18	1	108	85	97	85	87	
other (wound and unspecified)	—	11	0	19	27	48	31	30	
Brucellosis	2	27	3	77	131	121	120	114	CA (2)
Chancroid	—	13	1	29	23	33	17	30	
Cholera	—	2	0	3	7	9	8	6	
Cyclosporiasis[§]	—	29	14	137	93	137	543	160	
Diphtheria	—	—	—	—	—	—	—	—	
Domestic arboviral diseases[§,¶]:									
California serogroup	—	—	0	62	55	67	80	112	
eastern equine	—	—	—	4	4	8	21	6	
Powassan	—	—	—	2	7	1	1	1	
St. Louis	—	—	0	13	9	10	13	12	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis[§,**]:									
Ehrlichia chaffeensis	3	51	5	993	828	578	506	338	NY (1), MO (1), MD (1)
Ehrlichia ewingii	—	—	—	8	—	—	—	—	
Anaplasma phagocytophilum	3	21	5	719	834	646	786	537	ME (1), NY (2)
undetermined	1	8	3	157	337	231	112	59	TN (1)
Haemophilus influenzae,[††]									
invasive disease (age <5 yrs):									
serotype b	—	11	0	28	22	29	9	19	
nonserotype b	1	75	3	228	199	175	135	135	CT (1)
unknown serotype	—	66	4	172	180	179	217	177	
Hansen disease[§]	—	16	2	80	101	66	87	105	
Hantavirus pulmonary syndrome[§]	—	1	1	18	32	40	26	24	
Hemolytic uremic syndrome, postdiarrheal[§]	—	34	3	283	292	288	221	200	
Hepatitis C viral, acute	6	263	14	867	845	766	652	720	NY (1), IA (1), NC (1), KY (1), OK (1), CA (1)
HIV infection, pediatric (age <13 years)[§§]	—	—	3	—	—	—	380	436	
Influenza-associated pediatric mortality[§,¶¶]	3	60	2	88	77	43	45	—	AZ (1), CA (1), TX (1)
Listeriosis	—	159	10	758	808	884	896	753	
Measles[***]	—	16	2	140	43	55	66	37	
Meningococcal disease, invasive[†††]:									
A, C, Y, and W-135	1	107	6	335	325	318	297	—	PA (1)
serogroup B	1	47	3	183	167	193	156	—	MD (1)
other serogroup	—	8	1	33	35	32	27	—	
unknown serogroup	5	188	14	606	550	651	765	—	CA (5)
Mumps	10	115	124	447	800	6,584	314	258	ME (1), NY (4), NYC (2), NE (1), NC (1), CA (1)
Novel influenza A virus infections[§§§]	—	3,343	—	2	4	N	N	N	
Plague	—	—	0	1	7	17	8	3	
Poliomyelitis, paralytic	—	—	—	—	—	—	1	—	
Polio virus infection, nonparalytic[§]	—	—	—	—	—	N	N	N	
Psittacosis[§]	—	6	0	8	12	21	16	12	
Q fever total[§,¶¶¶]:	—	19	2	113	171	169	136	70	
acute	—	16	1	101	—	—	—	—	
chronic	—	3	0	12	—	—	—	—	
Rabies, human	—	—	—	1	1	3	2	7	
Rubella[****]	—	1	0	17	12	11	11	10	
Rubella, congenital syndrome	—	1	—	—	—	1	1	—	
SARS-CoV[§,††††]	—	—	—	—	—	—	—	—	
Smallpox[§]	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome[§]	—	61	4	158	132	125	129	132	
Syphilis, congenital (age <1 yr)	—	53	7	381	430	349	329	353	
Tetanus	—	4	1	19	28	41	27	34	
Toxic-shock syndrome (staphylococcal)[§]	—	28	1	73	92	101	90	95	
Trichinellosis	—	9	0	37	5	15	16	5	
Tularemia	—	7	2	121	137	95	154	134	
Typhoid fever	3	114	7	446	434	353	324	322	FL (1), CA (2)
Vancomycin-intermediate *Staphylococcus aureus*[§]	1	19	0	49	37	6	2	—	NY (1)
Vancomycin-resistant *Staphylococcus aureus*[§]	—	—	—	—	2	1	3	1	
Vibriosis (noncholera *Vibrio* species infections)[§]	1	51	3	485	549	N	N	N	FL (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 May 9, 2009 (18th 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. Fifty-nine influenza-associated pediatric deaths occurring during the 2008-09 influenza season have been reported.

*** No measles cases were reported for the current week.

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

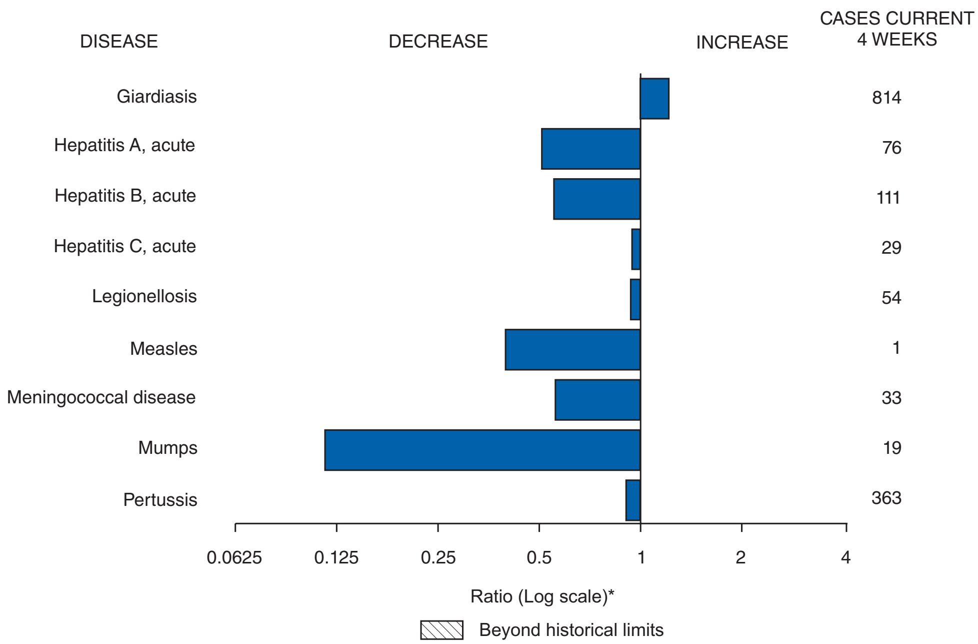
§§§ These cases were obtained from state and territorial health departments in response to novel Influenza A (H1N1) infections and include cases in addition to those reported to the National Notifiable Diseases Surveillance System (NNDSS). Because of the volume of cases and the method by which they are being collected, a 5-year weekly average for this disease is not calculated.

¶¶¶ 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 May 9, 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

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TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 9, 2009, and May 3, 2008 (18th 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	11,735	21,996	24,845	355,615	397,352	84	130	333	2,494	2,320	60	108	482	1,356	1,380
New England	431	744	1,655	13,577	12,349	—	0	0	—	1	1	5	23	81	123
Connecticut	275	226	1,306	4,054	3,146	N	0	0	N	N	—	0	9	9	41
Maine§	56	48	72	896	887	N	0	0	N	N	1	1	6	9	6
Massachusetts	—	326	950	6,597	6,117	N	0	0	N	N	—	2	13	35	37
New Hampshire	2	34	63	345	724	—	0	0	—	1	—	1	4	14	20
Rhode Island§	68	53	244	1,275	1,078	—	0	0	—	—	—	0	3	1	3
Vermont§	30	21	53	410	397	N	0	0	N	N	—	1	7	13	16
Mid. Atlantic	3,312	2,863	6,734	52,809	51,718	—	0	0	—	—	10	13	35	166	176
New Jersey	308	386	770	5,985	7,931	N	0	0	N	N	—	0	4	—	15
New York (Upstate)	592	578	4,563	10,659	8,915	N	0	0	N	N	3	4	17	47	43
New York City	1,773	1,082	3,130	21,785	20,122	N	0	0	N	N	—	1	8	24	34
Pennsylvania	639	796	1,072	14,380	14,750	N	0	0	N	N	7	5	15	95	84
E.N. Central	1,070	3,345	4,273	51,663	67,168	—	1	3	13	18	10	25	125	301	304
Illinois	—	1,082	1,356	14,519	20,325	N	0	0	N	N	—	2	13	18	30
Indiana	333	402	713	7,961	7,695	N	0	0	N	N	1	3	17	45	34
Michigan	644	827	1,230	15,654	16,400	—	0	3	5	14	—	5	13	66	65
Ohio	93	793	1,300	8,064	15,556	—	0	2	8	4	9	6	59	102	72
Wisconsin	—	293	439	5,465	7,192	N	0	0	N	N	—	8	46	70	103
W.N. Central	844	1,318	1,550	22,718	22,960	—	0	1	1	—	10	16	68	184	213
Iowa	195	191	257	3,465	3,002	N	0	0	N	N	3	4	30	38	44
Kansas	198	186	401	3,484	3,023	N	0	0	N	N	2	1	8	21	19
Minnesota	—	265	314	3,769	5,149	—	0	0	—	—	2	4	14	42	52
Missouri	329	496	581	9,208	8,453	—	0	1	1	—	1	3	13	34	48
Nebraska§	76	99	254	1,591	1,711	N	0	0	N	N	2	2	8	22	32
North Dakota	—	26	60	156	658	N	0	0	N	N	—	0	2	1	1
South Dakota	46	57	85	1,045	964	N	0	0	N	N	—	1	9	26	17
S. Atlantic	1,939	3,907	4,991	60,945	73,618	—	0	1	4	2	12	21	49	275	249
Delaware	94	68	180	1,718	1,300	—	0	1	1	—	—	0	1	—	6
District of Columbia	143	124	229	2,447	2,424	—	0	0	—	—	—	0	2	—	6
Florida	564	1,381	1,906	25,627	25,449	N	0	0	N	N	7	8	35	90	108
Georgia	1	676	1,909	5,292	13,317	N	0	0	N	N	3	6	13	111	78
Maryland§	—	449	772	6,885	7,917	—	0	1	3	2	—	1	5	9	6
North Carolina	—	0	460	—	2,989	N	0	0	N	N	—	0	16	35	9
South Carolina§	491	544	887	7,463	9,130	N	0	0	N	N	—	1	6	14	11
Virginia§	615	620	907	10,162	9,895	N	0	0	N	N	2	1	4	11	17
West Virginia	31	67	101	1,351	1,197	N	0	0	N	N	—	0	3	5	8
E.S. Central	831	1,681	2,161	29,757	28,011	—	0	0	—	—	3	3	9	43	40
Alabama§	—	470	553	6,937	8,762	N	0	0	N	N	—	1	6	10	18
Kentucky	—	245	380	3,685	3,531	N	0	0	N	N	2	1	4	13	7
Mississippi	358	424	841	8,644	6,161	N	0	0	N	N	—	0	2	4	3
Tennessee§	473	559	796	10,491	9,557	N	0	0	N	N	1	1	5	16	12
W.S. Central	190	2,831	4,001	37,753	50,668	—	0	1	—	1	2	8	272	57	62
Arkansas§	180	278	394	5,188	4,976	N	0	0	N	N	—	1	10	10	10
Louisiana	—	428	1,090	4,736	6,486	—	0	1	—	1	—	1	5	6	12
Oklahoma	10	175	395	2,061	4,463	N	0	0	N	N	2	2	16	20	13
Texas§	—	1,905	2,532	25,768	34,743	N	0	0	N	N	—	5	258	21	27
Mountain	1,766	1,267	2,046	21,318	24,698	58	90	211	1,708	1,572	4	8	38	93	111
Arizona	371	463	627	6,260	8,431	58	89	209	1,678	1,534	1	1	10	10	11
Colorado	986	176	695	4,794	5,240	N	0	0	N	N	1	2	12	28	21
Idaho§	76	68	314	1,324	1,377	N	0	0	N	N	2	1	5	12	23
Montana§	8	58	87	1,017	1,085	N	0	0	N	N	—	0	4	10	13
Nevada§	107	177	365	3,586	3,515	—	1	7	23	17	—	0	4	6	5
New Mexico§	156	145	456	2,458	2,491	—	0	2	2	13	—	2	23	18	21
Utah	1	96	251	1,100	2,087	—	0	1	5	8	—	0	6	1	10
Wyoming§	61	33	97	779	472	—	0	1	—	—	—	0	2	8	7
Pacific	1,352	3,651	4,607	65,075	66,162	26	38	172	768	726	8	9	32	156	102
Alaska	94	87	199	1,614	1,645	N	0	0	N	N	1	0	1	2	1
California	1,080	2,873	3,585	51,648	51,164	26	38	172	768	726	7	6	14	85	64
Hawaii	—	110	247	1,789	2,031	N	0	0	N	N	—	0	1	1	1
Oregon§	178	186	631	3,325	3,687	N	0	0	N	N	—	1	30	52	19
Washington	—	405	557	6,699	7,635	N	0	0	N	N	—	2	10	16	17
American Samoa	—	0	8	—	62	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	4	24	—	50	—	0	0	—	—	—	0	0	—	—
Puerto Rico	173	138	269	2,663	2,310	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	9	40	106	236	—	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 May 9, 2009, and May 3, 2008 (18th 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	203	314	641	4,826	5,111	2,274	5,852	6,681	81,704	111,151	30	51	124	916	1,110
New England	5	28	64	379	437	59	98	301	1,678	1,698	9	3	18	70	51
Connecticut	1	6	14	76	103	53	52	275	778	681	9	0	12	24	2
Maine§	3	4	12	67	38	2	2	9	55	32	—	0	2	8	5
Massachusetts	—	11	27	150	190	—	38	112	676	815	—	2	5	32	35
New Hampshire	—	2	10	27	36	1	2	6	39	42	—	0	2	2	5
Rhode Island§	—	1	8	15	29	2	5	16	108	118	—	0	7	2	1
Vermont§	1	3	15	44	41	1	1	4	22	10	—	0	3	2	3
Mid. Atlantic	33	60	119	836	996	561	603	1,138	10,171	11,216	4	10	25	172	199
New Jersey	—	8	21	—	167	60	83	144	1,223	1,938	—	1	7	12	34
New York (Upstate)	16	23	81	362	317	104	117	664	1,955	2,036	1	3	20	42	50
New York City	10	16	30	262	286	282	208	577	3,861	3,406	1	2	4	36	36
Pennsylvania	7	16	46	212	226	115	196	267	3,132	3,836	2	4	10	82	79
E.N. Central	20	47	89	668	777	250	1,184	1,580	15,462	24,232	1	6	27	105	173
Illinois	—	10	32	101	203	—	370	499	4,196	6,852	—	2	9	31	55
Indiana	N	0	11	N	N	105	156	256	2,626	3,138	—	1	22	21	35
Michigan	3	12	22	182	171	145	292	493	5,065	6,333	—	0	3	10	10
Ohio	17	16	31	266	278	—	254	531	2,106	5,771	1	2	6	36	59
Wisconsin	—	8	20	119	125	—	76	141	1,469	2,138	—	0	2	7	14
W.N. Central	14	26	143	477	544	175	312	393	4,875	5,758	1	3	14	63	74
Iowa	7	6	18	76	87	19	31	53	540	528	—	0	0	—	2
Kansas	—	3	11	43	35	36	41	83	823	750	—	0	4	9	6
Minnesota	—	0	106	137	191	—	50	78	590	1,158	—	0	10	13	14
Missouri	4	8	22	155	144	87	144	193	2,315	2,707	1	1	4	28	37
Nebraska§	3	3	10	41	57	29	27	50	461	485	—	0	2	10	10
North Dakota	—	0	4	3	10	—	2	7	6	42	—	0	3	3	5
South Dakota	—	2	11	22	20	4	8	20	140	88	—	0	0	—	—
S. Atlantic	66	65	108	1,177	811	529	1,269	1,696	16,912	25,269	10	12	23	267	286
Delaware	1	0	3	9	14	12	16	35	277	423	—	0	2	3	3
District of Columbia	—	0	5	—	20	48	52	90	1,000	798	—	0	2	—	2
Florida	34	31	57	614	357	195	420	592	7,341	8,643	8	4	9	103	69
Georgia	17	13	63	300	186	—	271	876	1,757	4,920	—	2	9	59	66
Maryland§	6	6	10	81	77	—	121	212	1,795	2,124	2	1	6	36	49
North Carolina	N	0	0	N	N	—	0	203	—	1,593	—	1	6	20	26
South Carolina§	2	2	8	34	37	140	173	316	2,200	3,355	—	1	5	21	27
Virginia§	6	8	31	124	92	126	177	321	2,344	3,127	—	1	5	12	35
West Virginia	—	1	5	15	28	8	12	26	198	286	—	0	3	13	9
E.S. Central	3	8	22	99	137	247	547	771	8,599	10,136	—	3	6	50	67
Alabama§	—	4	12	47	70	—	166	216	2,027	3,509	—	0	2	11	8
Kentucky	N	0	0	N	N	—	87	153	1,076	1,342	—	0	2	5	5
Mississippi	N	0	0	N	N	117	143	253	2,637	2,342	—	0	1	—	9
Tennessee§	3	4	13	52	67	130	162	301	2,859	2,943	—	2	5	34	45
W.S. Central	8	8	22	102	85	74	938	1,300	11,138	17,542	3	2	21	47	52
Arkansas§	4	2	8	37	36	60	83	167	1,521	1,605	—	0	2	6	4
Louisiana	—	2	10	37	30	—	162	410	1,563	3,148	—	0	1	8	4
Oklahoma	4	3	18	28	19	14	68	424	1,089	1,660	3	1	20	33	39
Texas§	N	0	0	N	N	—	596	725	6,965	11,129	—	0	1	—	5
Mountain	12	27	62	341	405	98	195	345	2,546	4,004	2	5	11	99	144
Arizona	—	3	10	56	38	32	58	82	705	1,252	1	1	7	38	62
Colorado	8	10	27	113	149	20	53	249	716	1,017	1	1	5	25	26
Idaho§	—	3	14	32	47	1	3	13	37	63	—	0	2	2	5
Montana§	—	2	9	30	23	—	2	6	27	40	—	0	1	1	1
Nevada§	4	2	8	23	33	28	34	86	665	921	—	0	2	9	8
New Mexico§	—	1	8	24	33	16	24	42	312	471	—	1	3	13	20
Utah	—	7	18	47	69	—	6	15	61	210	—	0	2	11	22
Wyoming§	—	1	4	16	13	1	2	8	23	30	—	0	2	—	—
Pacific	42	54	127	747	919	281	590	757	10,323	11,296	—	2	11	43	64
Alaska	—	2	10	21	25	15	13	24	264	174	—	0	2	3	7
California	26	34	59	530	644	254	489	659	8,756	9,260	—	0	4	7	23
Hawaii	—	0	4	4	10	—	12	21	189	190	—	0	2	12	7
Oregon§	—	7	58	106	161	12	21	48	364	480	—	0	10	18	25
Washington	16	7	74	86	79	—	52	81	750	1,192	—	0	2	3	2
American Samoa	—	0	0	—	—	—	0	1	—	2	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	1	15	—	18	—	0	0	—	—
Puerto Rico	—	3	15	25	47	3	5	22	73	80	—	0	1	—	—
U.S. Virgin Islands	—	0	0	—	—	—	2	6	23	41	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 May 9, 2009, and May 3, 2008 (18th week)*

	Hepatitis (viral, acute), by type†										Legionellosis				
	A					B									
		Previous 52 weeks					Previous 52 weeks					Previous 52 weeks			
Reporting area	Current week	Med	Max	Cum 2009	Cum 2008	Current week	Med	Max	Cum 2009	Cum 2008	Current week	Med	Max	Cum 2009	Cum 2008
United States	17	41	88	572	930	28	74	192	1,068	1,247	18	51	153	472	607
New England	1	2	8	30	49	—	1	4	9	27	—	2	18	14	32
Connecticut	1	0	4	9	10	—	0	3	4	12	—	0	5	6	7
Maine§	—	0	5	1	3	—	0	2	3	4	—	0	2	—	1
Massachusetts	—	1	3	14	25	—	0	2	1	8	—	1	7	6	11
New Hampshire	—	0	2	2	3	—	0	2	1	1	—	0	5	—	4
Rhode Island§	—	0	2	3	8	—	0	1	—	1	—	0	14	1	5
Vermont§	—	0	1	1	—	—	0	1	—	1	—	0	1	1	4
Mid. Atlantic	2	5	13	62	114	3	7	16	90	172	5	15	61	120	128
New Jersey	—	1	5	5	26	—	1	5	5	54	—	2	14	6	14
New York (Upstate)	1	1	4	16	24	2	1	11	23	21	3	5	24	45	33
New York City	—	2	6	17	32	—	1	5	22	34	—	2	12	12	15
Pennsylvania	1	1	4	24	32	1	3	8	40	63	2	6	35	57	66
E.N. Central	—	5	12	71	136	2	9	20	139	154	3	8	41	87	142
Illinois	—	1	5	16	49	—	2	7	17	46	—	2	13	8	21
Indiana	—	0	3	5	6	—	1	18	16	9	—	1	6	7	9
Michigan	—	2	5	25	56	—	2	8	44	54	—	2	16	17	42
Ohio	—	1	4	20	12	2	2	13	47	39	3	3	18	50	65
Wisconsin	—	0	3	5	13	—	0	3	15	6	—	0	3	5	5
W.N. Central	—	2	15	36	120	1	2	15	56	21	—	2	8	13	31
Iowa	—	1	6	4	54	—	0	3	7	7	—	0	2	6	7
Kansas	—	0	1	3	9	—	0	3	2	3	—	0	1	1	1
Minnesota	—	0	12	7	10	—	0	11	7	1	—	0	4	—	3
Missouri	—	0	3	15	14	1	1	5	30	9	—	1	7	3	10
Nebraska§	—	0	4	6	31	—	0	3	9	1	—	0	3	2	9
North Dakota	—	0	1	—	—	—	0	1	—	—	—	0	1	1	—
South Dakota	—	0	1	1	2	—	0	1	1	—	—	0	1	—	1
S. Atlantic	6	7	15	144	117	12	20	34	368	320	6	9	22	117	121
Delaware	—	0	1	1	2	—	0	2	10	8	1	0	2	1	2
District of Columbia	U	0	0	U	U	U	0	0	U	U	—	0	2	—	4
Florida	3	3	8	74	50	7	6	11	113	114	3	3	7	49	48
Georgia	—	1	4	20	19	—	3	9	51	52	—	1	5	17	11
Maryland§	2	1	4	16	15	1	2	5	35	30	—	2	9	22	25
North Carolina	1	0	9	15	9	2	0	19	107	25	—	0	7	17	7
South Carolina§	—	0	3	10	5	—	1	4	9	27	—	0	2	1	2
Virginia§	—	1	6	8	14	2	2	10	23	33	2	1	5	10	15
West Virginia	—	0	1	—	3	—	1	6	20	31	—	0	3	—	7
E.S. Central	—	1	9	10	16	2	8	13	103	129	1	2	10	22	28
Alabama§	—	0	2	1	4	—	2	7	30	34	—	0	2	2	3
Kentucky	—	0	3	1	6	2	2	7	29	37	1	1	4	11	16
Mississippi	—	0	2	5	—	—	1	3	5	13	—	0	1	—	—
Tennessee§	—	0	6	3	6	—	3	8	39	45	—	0	5	9	9
W.S. Central	—	4	43	47	85	6	12	95	167	254	—	2	20	20	15
Arkansas§	—	0	1	4	2	—	1	5	12	15	—	0	2	1	1
Louisiana	—	0	2	2	6	—	1	4	16	30	—	0	2	1	2
Oklahoma	—	0	6	1	3	6	2	16	38	25	—	0	6	1	—
Texas§	—	3	37	40	74	—	7	74	101	184	—	1	19	17	12
Mountain	3	3	31	52	74	—	4	10	38	57	—	2	8	23	28
Arizona	3	2	28	29	25	—	1	5	16	21	—	0	2	8	7
Colorado	—	0	2	7	16	—	0	3	8	9	—	0	2	1	3
Idaho§	—	0	1	—	11	—	0	2	1	3	—	0	1	—	1
Montana§	—	0	1	2	—	—	0	1	—	—	—	0	2	4	3
Nevada§	—	0	3	6	2	—	0	3	6	16	—	0	2	5	4
New Mexico§	—	0	1	5	14	—	0	2	4	6	—	0	2	—	3
Utah	—	0	2	3	3	—	0	3	3	1	—	0	2	5	7
Wyoming§	—	0	0	—	3	—	0	1	—	1	—	0	0	—	—
Pacific	5	8	25	120	219	2	7	36	98	113	3	3	9	56	82
Alaska	—	0	1	3	2	—	0	1	1	4	—	0	1	2	1
California	4	6	25	93	175	1	5	28	76	77	3	3	9	47	66
Hawaii	—	0	2	3	3	—	0	1	1	3	—	0	1	1	4
Oregon§	—	0	2	6	16	—	0	5	9	14	—	0	2	3	7
Washington	1	1	4	15	23	1	1	8	11	15	—	0	3	3	4
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	7	9	—	0	5	2	18	—	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 May 9, 2009, and May 3, 2008 (18th 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	121	489	1,604	2,390	2,665	3	25	46	266	265	7	18	44	350	515
New England	10	89	552	281	659	—	1	6	8	9	—	0	4	15	14
Connecticut	—	0	0	—	—	—	0	4	1	—	—	0	1	1	1
Maine§	7	5	73	46	37	—	0	0	—	1	—	0	1	2	1
Massachusetts	—	37	375	117	395	—	0	4	6	6	—	0	3	9	12
New Hampshire	—	15	145	83	116	—	0	1	—	1	—	0	1	1	—
Rhode Island§	—	0	74	6	97	—	0	1	—	1	—	0	1	1	—
Vermont§	3	4	41	29	14	—	0	1	1	—	—	0	1	1	—
Mid. Atlantic	91	223	1,394	1,284	1,129	2	5	16	58	65	1	2	5	35	59
New Jersey	—	39	231	259	540	—	0	4	—	11	—	0	1	1	9
New York (Upstate)	47	99	1,368	506	218	2	0	10	17	7	—	0	2	8	15
New York City	—	4	36	—	55	—	3	10	33	38	—	0	2	5	8
Pennsylvania	44	48	338	519	316	—	1	3	8	9	1	1	4	21	27
E.N. Central	—	10	147	76	110	—	2	7	30	44	—	3	8	58	87
Illinois	—	0	13	—	4	—	1	5	9	23	—	1	6	13	32
Indiana	—	0	8	1	1	—	0	2	5	1	—	0	4	11	12
Michigan	—	1	10	6	6	—	0	2	5	6	—	0	3	10	13
Ohio	—	0	6	6	5	—	0	2	11	12	—	0	3	18	21
Wisconsin	—	8	129	63	94	—	0	3	—	2	—	0	2	6	9
W.N. Central	—	7	336	37	66	—	1	10	8	19	—	1	7	27	48
Iowa	—	1	9	5	13	—	0	3	3	2	—	0	1	1	11
Kansas	—	0	4	3	2	—	0	2	1	2	—	0	2	6	2
Minnesota	—	4	326	28	51	—	0	8	1	6	—	0	4	6	15
Missouri	—	0	1	—	—	—	0	2	3	5	—	0	2	9	12
Nebraska§	—	0	2	—	—	—	0	1	—	4	—	0	1	3	6
North Dakota	—	0	10	—	—	—	0	0	—	—	—	0	1	—	1
South Dakota	—	0	1	1	—	—	0	0	—	—	—	0	1	2	1
S. Atlantic	15	76	225	629	640	—	7	16	108	66	1	3	9	63	64
Delaware	5	11	36	130	174	—	0	1	1	1	—	0	1	1	—
District of Columbia	—	1	7	—	7	—	0	2	—	—	—	0	0	—	—
Florida	—	1	6	12	10	—	1	7	29	15	—	1	4	27	24
Georgia	—	0	6	14	5	—	1	4	21	18	—	0	2	10	8
Maryland§	7	33	165	329	356	—	2	8	29	22	1	0	3	2	4
North Carolina	—	1	6	16	2	—	0	7	16	2	—	0	3	9	3
South Carolina§	—	0	2	5	5	—	0	1	1	1	—	0	2	5	11
Virginia§	3	15	61	106	64	—	1	3	10	6	—	0	2	7	12
West Virginia	—	2	11	17	17	—	0	1	1	1	—	0	1	2	2
E.S. Central	1	0	5	5	8	—	0	2	7	4	—	1	6	14	25
Alabama§	—	0	2	—	2	—	0	1	2	3	—	0	2	2	1
Kentucky	—	0	2	—	1	—	0	1	1	1	—	0	1	3	5
Mississippi	—	0	1	—	—	—	0	1	—	—	—	0	2	1	7
Tennessee§	1	0	3	5	5	—	0	2	4	—	—	0	3	8	12
W.S. Central	—	2	21	7	19	—	1	10	6	12	—	2	10	28	53
Arkansas§	—	0	0	—	—	—	0	1	—	—	—	0	2	5	8
Louisiana	—	0	1	—	—	—	0	1	1	—	—	0	3	9	15
Oklahoma	—	0	1	—	—	—	0	2	—	1	—	0	3	2	8
Texas§	—	2	21	7	19	—	1	10	5	11	—	1	9	12	22
Mountain	2	1	13	9	6	—	0	3	3	10	—	1	4	31	29
Arizona	—	0	2	—	2	—	0	2	1	3	—	0	2	7	2
Colorado	—	0	1	1	2	—	0	1	1	3	—	0	2	9	5
Idaho§	1	0	1	4	1	—	0	1	—	—	—	0	1	4	4
Montana§	—	0	13	1	—	—	0	0	—	—	—	0	1	2	3
Nevada§	1	0	2	3	—	—	0	0	—	4	—	0	2	3	5
New Mexico§	—	0	2	—	1	—	0	1	—	—	—	0	1	2	4
Utah	—	0	1	—	—	—	0	1	1	—	—	0	1	1	4
Wyoming§	—	0	1	—	—	—	0	0	—	—	—	0	2	3	2
Pacific	2	3	13	62	28	1	3	10	38	36	5	4	14	79	136
Alaska	—	0	2	1	—	—	0	2	1	—	—	0	2	2	2
California	2	2	5	56	20	1	2	8	28	29	5	2	8	45	108
Hawaii	N	0	0	N	N	—	0	1	1	1	—	0	1	2	1
Oregon§	—	0	3	5	8	—	0	2	4	3	—	1	10	22	14
Washington	—	0	12	—	—	—	0	3	4	3	—	0	6	8	11
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	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 May 9, 2009, and May 3, 2008 (18th 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	123	237	1,653	3,663	2,579	43	76	119	1,019	1,256	6	40	149	250	128
New England	—	18	35	167	328	5	8	21	99	114	—	0	2	2	1
Connecticut	—	0	4	6	23	3	3	17	44	53	—	0	0	—	—
Maine†	—	1	7	31	12	2	1	5	18	23	—	0	1	2	—
Massachusetts	—	12	30	105	260	—	0	0	—	—	—	0	1	—	1
New Hampshire	—	1	5	16	9	—	1	7	9	12	—	0	1	—	—
Rhode Island†	—	1	6	3	19	—	0	3	7	9	—	0	2	—	—
Vermont†	—	0	2	6	5	—	1	6	21	17	—	0	0	—	—
Mid. Atlantic	30	23	61	304	281	8	18	30	224	249	—	2	30	6	25
New Jersey	—	3	12	20	50	—	0	0	—	—	—	1	6	—	12
New York (Upstate)	5	6	41	65	84	3	9	20	106	124	—	0	29	1	1
New York City	10	0	20	33	36	—	0	2	—	7	—	0	2	4	8
Pennsylvania	15	9	30	186	111	5	8	17	118	118	—	0	2	1	4
E.N. Central	14	37	238	752	560	—	3	28	16	15	1	2	15	10	8
Illinois	—	13	45	164	52	—	1	20	6	4	—	1	10	6	8
Indiana	—	2	158	74	15	—	0	2	—	1	—	0	3	—	—
Michigan	—	8	21	169	62	—	1	9	10	7	—	0	1	1	—
Ohio	14	11	57	325	408	—	0	7	—	3	1	0	4	3	—
Wisconsin	—	2	7	20	23	N	0	0	N	N	—	0	1	—	—
W.N. Central	16	30	839	774	199	13	5	17	78	70	1	4	33	17	8
Iowa	—	4	21	40	30	—	0	5	6	4	—	0	2	—	—
Kansas	—	2	12	61	24	1	1	6	36	32	—	0	0	—	—
Minnesota	—	2	781	155	31	11	0	10	18	16	—	0	0	—	—
Missouri	14	13	51	438	93	1	1	8	10	2	—	4	32	16	8
Nebraska†	2	4	32	71	15	—	0	0	—	—	1	0	4	1	—
North Dakota	—	0	18	2	—	—	0	9	3	8	—	0	0	—	—
South Dakota	—	0	10	7	6	—	0	2	5	8	—	0	1	—	—
S. Atlantic	41	25	71	513	243	16	28	66	455	653	3	16	72	171	46
Delaware	—	0	3	5	2	—	0	0	—	—	—	0	5	1	2
District of Columbia	—	0	2	—	1	—	0	0	—	—	—	0	1	—	1
Florida	18	7	20	150	54	—	0	21	48	138	—	0	3	1	2
Georgia	1	3	9	74	16	14	6	47	102	132	1	1	9	7	10
Maryland†	3	2	10	33	40	—	7	17	102	146	1	1	7	13	10
North Carolina	18	0	65	152	59	N	2	4	N	N	—	9	55	129	11
South Carolina†	1	2	10	52	28	—	0	0	—	—	1	1	9	8	2
Virginia†	—	3	24	42	38	—	10	24	171	202	—	2	15	11	6
West Virginia	—	0	2	5	5	2	1	6	32	35	—	0	1	1	2
E.S. Central	4	10	33	200	81	1	3	7	34	54	1	4	23	29	21
Alabama†	2	2	9	52	17	—	0	0	—	—	—	1	8	8	10
Kentucky	1	4	15	86	12	1	1	4	22	10	—	0	1	—	—
Mississippi	—	2	5	17	35	—	0	1	—	1	—	0	3	1	2
Tennessee†	1	2	14	45	17	—	2	6	12	43	1	3	19	20	9
W.S. Central	7	37	381	458	201	—	0	9	16	32	—	2	128	11	12
Arkansas†	—	2	38	27	22	—	0	6	12	18	—	0	56	3	1
Louisiana	—	2	7	34	5	—	0	0	—	—	—	0	1	—	2
Oklahoma	—	0	40	9	4	—	0	9	4	13	—	0	71	2	3
Texas†	7	30	303	388	170	—	0	1	—	1	—	1	6	6	6
Mountain	8	15	31	284	354	—	2	9	35	19	—	1	3	4	6
Arizona	—	3	10	51	93	N	0	0	N	N	—	0	2	1	3
Colorado	7	3	12	91	59	—	0	0	—	—	—	0	1	—	—
Idaho†	1	1	5	27	15	—	0	2	—	—	—	0	1	—	—
Montana†	—	0	4	9	58	—	0	4	10	—	—	0	1	1	—
Nevada†	—	0	3	6	12	—	0	5	—	1	—	0	2	—	—
New Mexico†	—	1	10	28	22	—	0	2	14	14	—	0	1	1	1
Utah	—	4	19	71	91	—	0	6	—	—	—	0	1	1	2
Wyoming†	—	0	2	1	4	—	0	4	11	4	—	0	2	—	—
Pacific	3	24	98	211	332	—	4	13	62	50	—	0	1	—	1
Alaska	—	3	21	27	29	—	0	2	8	11	N	0	0	N	N
California	—	6	24	22	170	—	3	12	54	38	—	0	0	—	—
Hawaii	—	0	3	8	4	—	0	0	—	—	N	0	0	N	N
Oregon†	—	3	18	58	47	—	0	2	—	1	—	0	1	—	1
Washington	3	6	76	96	82	—	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	1	1	—	—	1	5	15	21	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N	N	0	0	N	N

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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 May 9, 2009, and May 3, 2008 (18th 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	394	975	2,245	9,675	9,971	24	82	219	770	903	158	442	1,238	4,643	5,049
New England	2	32	146	516	845	—	3	21	51	84	—	3	12	57	88
Connecticut	—	0	120	120	491	—	0	21	21	47	—	0	7	7	40
Maine§	—	2	8	31	42	—	0	3	1	3	—	0	6	2	1
Massachusetts	—	23	51	263	248	—	1	11	15	25	—	2	9	40	40
New Hampshire	2	3	10	55	31	—	1	3	10	5	—	0	1	1	2
Rhode Island§	—	2	9	32	18	—	0	3	—	1	—	0	1	4	4
Vermont§	—	1	7	15	15	—	0	6	4	3	—	0	2	3	1
Mid. Atlantic	33	100	203	1,084	1,239	—	7	27	58	99	16	55	96	867	584
New Jersey	—	20	55	102	299	—	1	12	7	42	—	19	38	231	131
New York (Upstate)	11	29	65	291	268	—	3	12	26	26	2	8	31	56	163
New York City	4	21	54	279	316	—	1	5	22	12	2	11	31	158	251
Pennsylvania	18	28	78	412	356	—	0	8	3	19	12	10	32	422	39
E.N. Central	43	99	194	1,197	1,177	2	12	75	114	116	18	83	128	949	943
Illinois	—	27	71	287	330	—	1	10	29	24	—	17	34	174	309
Indiana	1	8	53	73	100	—	1	14	13	7	—	5	39	22	267
Michigan	5	18	38	260	245	—	3	43	27	20	1	5	24	90	26
Ohio	37	27	65	417	299	2	3	17	28	25	17	42	80	551	254
Wisconsin	—	13	50	160	203	—	3	20	17	40	—	8	33	112	87
W.N. Central	25	52	148	785	675	9	12	58	113	105	14	14	39	172	315
Iowa	2	7	16	103	109	2	3	21	27	26	1	3	12	35	35
Kansas	3	7	29	85	69	1	1	7	8	8	4	2	6	58	3
Minnesota	7	12	69	193	192	2	2	21	31	15	3	3	25	20	72
Missouri	11	13	48	148	181	2	2	11	28	38	6	2	14	51	116
Nebraska§	2	5	41	161	78	2	2	30	17	10	—	0	3	6	—
North Dakota	—	0	10	9	12	—	0	1	—	1	—	0	3	1	22
South Dakota	—	3	22	86	34	—	0	4	2	7	—	0	3	1	67
S. Atlantic	137	261	458	2,498	2,476	4	13	49	170	175	16	50	98	678	1,103
Delaware	1	2	9	14	39	—	0	2	4	4	3	0	3	15	3
District of Columbia	—	0	4	—	23	—	0	1	—	2	—	0	2	—	6
Florida	66	97	174	1,032	1,148	1	2	10	50	52	2	11	26	140	342
Georgia	27	41	96	425	361	—	1	8	16	13	4	14	47	174	422
Maryland§	12	17	36	187	174	—	2	11	24	26	3	4	12	96	23
North Carolina	—	25	106	425	259	—	2	21	44	17	—	5	27	128	35
South Carolina§	17	17	57	182	214	1	1	3	6	13	2	6	31	54	202
Virginia§	14	20	88	186	188	2	3	27	20	35	2	4	59	66	51
West Virginia	—	3	10	47	70	—	0	3	6	13	—	0	3	5	19
E.S. Central	27	60	140	542	578	1	5	12	46	66	21	28	67	276	654
Alabama§	—	16	49	151	180	—	1	3	7	26	—	5	18	56	165
Kentucky	9	10	18	119	99	—	1	7	12	13	10	2	20	47	98
Mississippi	4	14	57	110	131	—	0	2	3	2	1	1	18	10	175
Tennessee§	14	15	62	162	168	1	2	6	24	25	10	16	48	163	216
W.S. Central	27	141	1,281	675	830	1	6	63	43	94	45	96	947	936	789
Arkansas§	11	12	39	114	88	—	1	5	6	16	14	11	27	96	79
Louisiana	1	17	50	103	156	—	0	0	—	2	—	9	26	57	166
Oklahoma	15	15	58	142	99	1	1	19	5	3	3	3	43	54	35
Texas§	—	95	1,201	316	487	—	5	55	32	73	28	66	888	729	509
Mountain	27	61	110	725	846	3	11	40	90	108	8	26	54	323	207
Arizona	5	23	43	266	228	—	1	4	9	21	4	15	35	225	89
Colorado	12	12	20	159	275	2	4	18	49	25	3	3	11	33	24
Idaho§	2	3	12	48	42	—	2	15	7	24	1	0	2	1	4
Montana§	—	2	7	38	26	—	0	3	4	14	—	0	5	8	—
Nevada§	7	4	14	75	73	1	0	3	4	4	—	3	13	26	66
New Mexico§	—	7	32	54	86	—	1	6	10	10	—	2	12	26	15
Utah	1	6	19	68	89	—	1	9	6	7	—	1	3	4	6
Wyoming§	—	1	5	17	27	—	0	2	1	3	—	0	1	—	3
Pacific	73	120	534	1,653	1,305	4	10	31	85	56	20	32	82	385	366
Alaska	1	1	4	15	14	—	0	1	—	2	—	0	1	2	—
California	59	86	516	1,264	994	3	5	15	60	33	16	27	75	304	312
Hawaii	—	5	15	80	60	—	0	2	1	2	—	1	3	5	13
Oregon§	—	7	46	110	102	—	1	8	5	5	—	1	10	14	21
Washington	13	12	85	184	135	1	3	16	19	14	4	2	15	60	20
American Samoa	—	0	1	—	1	—	0	0	—	—	—	0	2	3	1
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	2	—	4	—	0	0	—	—	—	0	3	—	5
Puerto Rico	—	14	40	76	165	—	0	0	—	—	—	0	4	1	7
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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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 May 9, 2009, and May 3, 2008 (18th week)*

	Streptococcal diseases, invasive, group A					*Streptococcus pneumoniae,* invasive disease, nondrug resistant† Age <5 years				
		Previous 52 weeks					Previous 52 weeks			
Reporting area	Current week	Med	Max	Cum 2009	Cum 2008	Current week	Med	Max	Cum 2009	Cum 2008
United States	66	100	237	2,237	2,453	34	35	114	694	783
New England	9	5	31	148	153	—	1	12	21	40
Connecticut	7	0	26	43	12	—	0	11	—	—
Maine§	—	0	3	8	12	—	0	1	—	1
Massachusetts	—	3	10	60	98	—	1	3	15	31
New Hampshire	1	0	4	23	15	—	0	1	4	7
Rhode Island§	—	0	8	4	8	—	0	2	—	1
Vermont§	1	0	3	10	8	—	0	1	2	—
Mid. Atlantic	12	18	37	419	522	16	4	25	109	95
New Jersey	—	1	9	3	92	—	1	4	13	32
New York (Upstate)	10	6	25	158	157	5	2	17	58	39
New York City	—	4	12	90	105	11	0	23	38	24
Pennsylvania	2	6	18	168	168	N	0	2	N	N
E.N. Central	7	17	43	445	499	7	6	18	101	145
Illinois	—	5	11	107	140	—	1	5	14	40
Indiana	—	3	23	70	62	—	0	13	11	16
Michigan	1	3	9	74	93	1	1	5	27	41
Ohio	6	4	13	132	137	6	1	5	37	25
Wisconsin	—	1	10	62	67	—	0	3	12	23
W.N. Central	1	6	37	178	191	1	2	14	59	42
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	—	0	4	25	24	N	0	1	N	N
Minnesota	—	0	34	65	83	—	0	9	22	15
Missouri	1	2	8	51	49	1	1	4	27	18
Nebraska§	—	1	3	25	17	—	0	1	3	3
North Dakota	—	0	2	2	7	—	0	3	3	1
South Dakota	—	0	2	10	11	—	0	2	4	5
S. Atlantic	24	22	46	494	485	6	6	14	141	155
Delaware	—	0	1	7	6	—	0	0	—	—
District of Columbia	—	0	2	—	5	N	0	0	N	N
Florida	7	5	12	121	108	2	1	6	32	24
Georgia	4	5	13	117	100	3	2	6	43	44
Maryland§	6	3	10	77	92	—	1	3	29	33
North Carolina	5	2	12	53	57	N	0	0	N	N
South Carolina§	1	1	5	35	32	1	1	6	26	25
Virginia§	—	3	9	65	66	—	0	2	3	25
West Virginia	1	1	4	19	19	—	0	2	8	4
E.S. Central	6	4	10	98	80	—	2	6	28	44
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	2	1	5	17	18	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	2	—	13
Tennessee§	4	3	8	81	62	—	1	6	28	31
W.S. Central	3	9	75	196	202	—	6	44	118	109
Arkansas§	—	0	2	9	6	—	0	3	11	7
Louisiana	—	0	2	6	8	—	0	3	12	5
Oklahoma	3	2	16	77	53	—	1	7	25	37
Texas§	—	6	59	104	135	—	4	34	70	60
Mountain	4	10	22	201	273	3	4	16	103	134
Arizona	—	3	8	59	90	3	2	10	62	61
Colorado	4	3	8	76	68	—	1	4	20	28
Idaho§	—	0	2	3	10	—	0	1	2	2
Montana§	N	0	0	N	N	N	0	0	N	N
Nevada§	—	0	1	3	5	—	0	1	—	2
New Mexico§	—	2	7	38	70	—	0	3	8	20
Utah	—	1	6	21	26	—	0	4	11	20
Wyoming§	—	0	1	1	4	—	0	1	—	1
Pacific	—	3	9	58	48	1	1	5	14	19
Alaska	—	0	4	8	12	1	0	4	9	10
California	N	0	0	N	N	N	0	0	N	N
Hawaii	—	3	8	50	36	—	0	2	5	9
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	8	—	16	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 May 9, 2009, and May 3, 2008 (18th week)*

Reporting area	*Streptococcus pneumoniae*, invasive disease, drug resistant† — All ages: Current week	All ages: Previous 52 weeks Med	All ages: Previous 52 weeks Max	All ages: Cum 2009	All ages: Cum 2008	Aged <5 years: Current week	Aged <5 years: Previous 52 weeks Med	Aged <5 years: Previous 52 weeks Max	Aged <5 years: Cum 2009	Aged <5 years: Cum 2008	Syphilis, primary and secondary: Current week	Syphilis: Previous 52 weeks Med	Syphilis: Previous 52 weeks Max	Syphilis: Cum 2009	Syphilis: Cum 2008
United States	35	57	118	1,265	1,481	5	8	19	186	190	95	258	453	3,968	4,222
New England	1	1	48	23	27	—	0	5	1	2	—	5	15	112	113
Connecticut	—	0	48	—	—	—	0	5	—	—	—	1	5	25	7
Maine§	—	0	2	4	11	—	0	1	—	—	—	0	2	1	3
Massachusetts	—	0	1	1	—	—	0	1	1	—	—	4	11	74	88
New Hampshire	—	0	3	5	—	—	0	0	—	—	—	0	2	8	6
Rhode Island§	—	0	6	5	8	—	0	1	—	1	—	0	5	4	4
Vermont§	1	0	2	8	8	—	0	1	—	1	—	0	2	—	5
Mid. Atlantic	4	3	10	71	151	1	0	3	11	12	43	33	51	659	601
New Jersey	—	0	0	—	—	—	0	0	—	—	2	4	13	87	78
New York (Upstate)	1	1	10	28	28	1	0	2	7	4	—	2	8	33	44
New York City	—	1	3	2	59	—	0	0	—	—	35	22	36	432	370
Pennsylvania	3	1	8	41	64	—	0	1	4	8	6	5	11	107	109
E.N. Central	7	9	41	232	327	—	1	7	33	46	4	24	44	312	419
Illinois	N	0	0	N	N	N	0	0	N	N	—	9	19	65	157
Indiana	—	2	32	42	116	—	0	6	7	15	—	2	10	56	53
Michigan	—	0	2	12	13	—	0	1	1	2	4	4	18	84	73
Ohio	7	7	18	178	198	—	1	4	25	29	—	6	28	89	116
Wisconsin	—	0	0	—	—	—	0	0	—	—	—	1	4	18	20
W.N. Central	—	2	8	51	104	—	0	3	14	7	2	7	14	103	155
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	2	10	8
Kansas	—	1	5	16	49	—	0	2	9	3	—	0	3	7	10
Minnesota	—	0	0	—	—	—	0	0	—	—	—	2	6	24	38
Missouri	—	1	5	31	52	—	0	1	5	1	—	3	10	56	94
Nebraska§	—	0	0	—	—	—	0	0	—	—	2	0	2	6	5
North Dakota	—	0	2	4	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	—	3	—	0	0	—	3	—	0	1	—	—
S. Atlantic	17	24	53	637	603	3	4	14	87	84	29	61	262	951	840
Delaware	—	0	1	8	2	—	0	0	—	—	3	0	4	14	1
District of Columbia	N	0	0	N	N	N	0	0	N	N	4	3	9	63	42
Florida	14	14	36	395	307	3	3	13	60	47	2	21	38	377	343
Georgia	3	8	25	176	223	—	1	5	25	30	—	12	227	97	119
Maryland§	—	0	1	4	4	—	0	0	—	1	—	7	16	107	110
North Carolina	N	0	0	N	N	N	0	0	N	N	9	6	19	167	96
South Carolina§	—	0	0	—	—	—	0	0	—	—	4	1	6	25	30
Virginia§	N	0	0	N	N	N	0	0	N	N	7	5	16	100	96
West Virginia	—	1	13	54	67	—	0	3	2	6	—	0	1	1	3
E.S. Central	3	5	25	151	155	—	1	4	20	22	7	22	36	391	353
Alabama§	N	0	0	N	N	N	0	0	N	N	—	8	17	139	154
Kentucky	2	1	5	42	39	—	0	2	6	7	—	1	10	22	29
Mississippi	—	0	2	—	1	—	0	1	—	—	—	3	18	73	42
Tennessee§	1	3	22	109	115	—	0	3	14	15	7	8	19	157	128
W.S. Central	1	1	7	44	55	1	0	3	9	10	—	46	80	613	703
Arkansas§	1	0	5	25	10	1	0	3	6	3	—	3	35	53	37
Louisiana	—	1	6	19	45	—	0	1	3	7	—	11	35	129	172
Oklahoma	N	0	0	N	N	N	0	0	N	N	—	1	7	23	28
Texas§	—	0	0	—	—	—	0	0	—	—	—	28	40	408	466
Mountain	2	2	7	54	58	—	0	3	10	6	4	9	19	81	192
Arizona	—	0	0	—	—	—	0	0	—	—	1	5	13	21	110
Colorado	—	0	0	—	—	—	0	0	—	—	2	1	5	7	35
Idaho§	N	0	1	N	N	N	0	1	N	N	1	0	2	3	1
Montana§	—	0	1	—	—	—	0	0	—	—	—	0	7	—	—
Nevada§	2	1	4	26	26	—	0	2	6	1	—	1	7	33	26
New Mexico§	—	0	0	—	—	—	0	0	—	—	—	1	5	17	8
Utah	—	1	6	22	32	—	0	3	4	5	—	0	2	—	11
Wyoming§	—	0	2	6	—	—	0	0	—	—	—	0	1	—	1
Pacific	—	0	1	2	1	—	0	1	1	1	6	46	65	746	846
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
California	N	0	0	N	N	N	0	0	N	N	6	41	60	681	766
Hawaii	—	0	1	2	1	—	0	1	1	1	—	0	3	11	10
Oregon§	N	0	0	N	N	N	0	0	N	N	—	0	3	11	6
Washington	N	0	0	N	N	N	0	0	N	N	—	3	9	43	64
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	—	—	3	2	11	63	51
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 May 9, 2009, and May 3, 2008 (18th week)*

	Varicella (chickenpox)					West Nile virus disease† — Neuroinvasive					West Nile virus disease† — Nonneuroinvasive§				
		Previous 52 weeks					Previous 52 weeks					Previous 52 weeks			
Reporting area	Current week	Med	Max	Cum 2009	Cum 2008	Current week	Med	Max	Cum 2009	Cum 2008	Current week	Med	Max	Cum 2009	Cum 2008
United States	265	407	865	6,251	13,389	—	1	75	—	3	—	1	77	—	9
New England	5	22	49	118	688	—	0	2	—	—	—	0	1	—	1
Connecticut	—	13	26	—	329	—	0	2	—	—	—	0	1	—	1
Maine¶	—	2	11	—	124	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
New Hampshire	3	4	11	78	124	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
Vermont¶	2	4	17	40	111	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	37	38	83	653	1,021	—	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	37	38	83	653	1,021	—	0	2	—	—	—	0	1	—	—
E.N. Central	116	147	247	2,898	3,140	—	0	8	—	—	—	0	3	—	—
Illinois	10	37	73	764	401	—	0	4	—	—	—	0	2	—	—
Indiana	—	0	9	64	—	—	0	1	—	—	—	0	1	—	—
Michigan	21	53	113	881	1,326	—	0	4	—	—	—	0	2	—	—
Ohio	85	42	91	1,071	1,191	—	0	3	—	—	—	0	1	—	—
Wisconsin	—	5	50	118	222	—	0	2	—	—	—	0	1	—	—
W.N. Central	27	22	61	531	632	—	0	6	—	1	—	0	21	—	—
Iowa	N	0	0	N	N	—	0	2	—	—	—	0	1	—	—
Kansas	8	6	22	142	261	—	0	2	—	1	—	0	3	—	—
Minnesota	—	0	0	—	—	—	0	2	—	—	—	0	4	—	—
Missouri	19	11	51	353	310	—	0	3	—	—	—	0	1	—	—
Nebraska¶	N	0	0	N	N	—	0	1	—	—	—	0	6	—	—
North Dakota	—	0	38	36	43	—	0	2	—	—	—	0	11	—	—
South Dakota	—	0	4	—	18	—	0	5	—	—	—	0	6	—	—
S. Atlantic	50	64	162	945	2,133	—	0	4	—	—	—	0	4	—	—
Delaware	—	0	5	2	10	—	0	0	—	—	—	0	1	—	—
District of Columbia	—	0	2	—	13	—	0	2	—	—	—	0	1	—	—
Florida	40	29	68	647	780	—	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	1	—	—	—	0	1	—	—
South Carolina¶	—	7	67	72	369	—	0	0	—	—	—	0	1	—	—
Virginia¶	—	13	60	28	654	—	0	0	—	—	—	0	1	—	—
West Virginia	10	10	32	196	307	—	0	1	—	—	—	0	0	—	—
E.S. Central	—	6	101	17	549	—	0	7	—	—	—	0	9	—	4
Alabama¶	—	6	101	16	541	—	0	3	—	—	—	0	2	—	1
Kentucky	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	1	1	8	—	0	4	—	—	—	0	8	—	2
Tennessee¶	N	0	0	N	N	—	0	2	—	—	—	0	3	—	1
W.S. Central	1	69	355	504	4,072	—	0	8	—	—	—	0	7	—	3
Arkansas¶	—	4	47	19	327	—	0	1	—	—	—	0	1	—	—
Louisiana	1	1	5	27	36	—	0	3	—	—	—	0	5	—	—
Oklahoma	N	0	0	N	N	—	0	1	—	—	—	0	1	—	1
Texas¶	—	57	345	458	3,709	—	0	6	—	—	—	0	4	—	2
Mountain	29	28	83	537	1,111	—	0	12	—	2	—	0	22	—	1
Arizona	—	0	0	—	—	—	0	10	—	1	—	0	8	—	—
Colorado	21	11	44	245	452	—	0	4	—	—	—	0	10	—	—
Idaho¶	N	0	0	N	N	—	0	1	—	1	—	0	6	—	1
Montana¶	—	3	27	70	150	—	0	0	—	—	—	0	2	—	—
Nevada¶	N	0	0	N	N	—	0	2	—	—	—	0	3	—	—
New Mexico¶	2	2	10	54	115	—	0	1	—	—	—	0	1	—	—
Utah	6	10	31	168	385	—	0	2	—	—	—	0	5	—	—
Wyoming¶	—	0	1	—	9	—	0	0	—	—	—	0	2	—	—
Pacific	—	3	8	48	43	—	0	38	—	—	—	0	23	—	—
Alaska	—	1	6	29	15	—	0	0	—	—	—	0	0	—	—
California	—	0	0	—	—	—	0	37	—	—	—	0	20	—	—
Hawaii	—	1	4	19	28	—	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	—	25	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	8	19	114	247	—	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 May 9, 2009 (18th week)

Reporting area	All causes, by age (years) All Ages	≥65	45–64	25–44	1–24	<1	P&I† Total
New England	547	359	133	22	22	11	59
Boston, MA	145	87	42	8	5	3	19
Bridgeport, CT	17	15	1	—	—	1	3
Cambridge, MA	12	11	—	—	1	—	3
Fall River, MA	32	24	6	2	—	—	3
Hartford, CT	57	33	19	3	2	—	4
Lowell, MA	20	16	4	—	—	—	1
Lynn, MA	8	6	1	—	1	—	1
New Bedford, MA	21	13	5	2	1	—	1
New Haven, CT	31	19	9	1	1	1	9
Providence, RI	65	37	20	2	3	3	3
Somerville, MA	4	2	2	—	—	—	—
Springfield, MA	43	28	11	1	1	2	—
Waterbury, CT	18	13	2	3	—	—	2
Worcester, MA	74	55	11	—	7	1	10
Mid. Atlantic	1,961	1,350	437	117	24	30	101
Albany, NY	38	25	9	1	1	2	1
Allentown, PA	22	17	4	—	—	1	2
Buffalo, NY	79	45	23	9	—	2	6
Camden, NJ	29	18	9	1	—	1	—
Elizabeth, NJ	13	11	2	—	—	—	1
Erie, PA	32	24	5	2	1	—	2
Jersey City, NJ	15	12	2	—	—	—	—
New York City, NY	1,018	698	234	62	11	11	44
Newark, NJ	28	16	8	3	—	1	1
Paterson, NJ	9	9	—	—	—	—	—
Philadelphia, PA	269	159	75	20	6	9	18
Pittsburgh, PA§	38	29	3	3	2	1	3
Reading, PA	20	15	4	1	—	—	—
Rochester, NY	129	101	24	2	1	1	13
Schenectady, NY	27	20	7	—	—	—	3
Scranton, PA	25	21	4	—	—	—	1
Syracuse, NY	97	77	12	5	2	1	4
Trenton, NJ	30	15	7	8	—	—	1
Utica, NY	22	21	1	—	—	—	—
Yonkers, NY	21	17	4	—	—	—	1
E.N. Central	2,110	1,330	525	148	54	51	133
Akron, OH	50	30	13	5	2	—	3
Canton, OH	32	23	6	1	—	2	4
Chicago, IL	358	190	104	46	14	4	20
Cincinnati, OH	100	68	20	7	1	3	12
Cleveland, OH	237	158	63	10	2	4	8
Columbus, OH	248	154	72	13	3	6	8
Dayton, OH	137	93	31	8	3	2	15
Detroit, MI	122	71	35	11	3	2	5
Evansville, IN	35	24	7	4	—	—	4
Fort Wayne, IN	62	46	14	2	—	—	5
Gary, IN	11	6	5	—	—	—	—
Grand Rapids, MI	50	33	8	3	1	5	5
Indianapolis, IN	227	127	60	15	11	14	16
Lansing, MI	46	33	10	2	—	1	4
Milwaukee, WI	98	65	25	4	4	—	2
Peoria, IL	61	40	15	2	1	3	4
Rockford, IL	41	27	8	5	1	—	—
South Bend, IN	40	25	4	2	5	3	1
Toledo, OH	94	70	17	4	2	1	8
Youngstown, OH	61	47	8	4	1	1	9
W.N. Central	587	359	153	41	15	18	50
Des Moines, IA	56	41	10	1	2	2	7
Duluth, MN	38	28	7	2	1	—	3
Kansas City, KS	11	5	4	1	1	—	—
Kansas City, MO	90	51	23	11	1	4	6
Lincoln, NE	31	20	7	4	—	—	2
Minneapolis, MN	59	37	14	5	2	1	4
Omaha, NE	73	40	27	2	1	3	11
St. Louis, MO	100	48	34	11	3	3	9
St. Paul, MN	56	41	12	2	1	—	6
Wichita, KS	73	48	15	2	3	5	2

Reporting area	All causes, by age (years) All Ages	≥65	45–64	25–44	1–24	<1	P&I† Total
S. Atlantic	1,268	807	307	87	28	39	88
Atlanta, GA	176	121	40	5	4	6	7
Baltimore, MD	176	114	47	9	3	3	21
Charlotte, NC	127	85	24	11	3	4	13
Jacksonville, FL	155	93	38	18	3	3	22
Miami, FL	96	68	18	5	1	4	3
Norfolk, VA	56	34	14	4	1	3	1
Richmond, VA	43	24	13	3	1	2	1
Savannah, GA	56	34	20	2	—	—	3
St. Petersburg, FL	70	50	10	1	4	5	3
Tampa, FL	176	116	43	9	3	5	9
Washington, D.C.	119	61	36	15	4	3	2
Wilmington, DE	18	7	4	5	1	1	3
E.S. Central	803	524	184	56	24	15	69
Birmingham, AL	165	96	52	6	7	4	22
Chattanooga, TN	101	69	19	7	3	3	4
Knoxville, TN	89	69	14	6	—	—	11
Lexington, KY	54	42	8	3	—	1	1
Memphis, TN	93	63	18	6	4	2	11
Mobile, AL	91	51	25	9	4	2	2
Montgomery, AL	55	30	17	6	1	1	5
Nashville, TN	155	104	31	13	5	2	13
W.S. Central	1,202	772	279	83	36	32	51
Austin, TX	51	30	12	5	2	2	3
Baton Rouge, LA	67	52	15	—	—	—	—
Corpus Christi, TX	28	15	10	3	—	—	1
Dallas, TX	178	113	41	15	4	5	11
El Paso, TX	87	63	12	5	4	3	4
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	332	193	83	29	14	13	7
Little Rock, AR	81	56	17	3	1	4	3
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	208	134	51	13	7	3	10
Shreveport, LA	63	40	17	3	2	1	2
Tulsa, OK	107	76	21	7	2	1	10
Mountain	1,100	740	245	57	27	28	72
Albuquerque, NM	131	104	16	3	3	5	5
Boise, ID	63	48	8	2	3	2	5
Colorado Springs, CO	76	46	18	6	—	6	1
Denver, CO	96	53	25	12	5	1	5
Las Vegas, NV	281	187	74	14	2	4	19
Ogden, UT	35	26	6	2	—	1	2
Phoenix, AZ	159	91	48	7	6	4	19
Pueblo, CO	36	31	1	2	2	—	5
Salt Lake City, UT	110	71	25	6	4	4	4
Tucson, AZ	113	83	24	3	2	1	7
Pacific	1,725	1,203	357	99	33	31	187
Berkeley, CA	7	5	2	—	—	—	—
Fresno, CA	116	82	24	7	3	—	17
Glendale, CA	32	24	5	1	—	2	4
Honolulu, HI	86	73	6	2	3	2	12
Long Beach, CA	56	35	15	4	1	1	11
Los Angeles, CA	267	166	67	22	7	5	34
Pasadena, CA	27	17	9	1	—	—	2
Portland, OR	134	102	21	7	3	—	11
Sacramento, CA	226	159	51	7	4	5	24
San Diego, CA	160	111	29	12	3	4	12
San Francisco, CA	119	73	32	6	2	6	18
San Jose, CA	198	150	31	13	2	2	14
Santa Cruz, CA	35	24	7	4	—	—	2
Seattle, WA	105	72	23	7	1	2	16
Spokane, WA	59	43	13	2	—	1	8
Tacoma, WA	98	67	22	4	4	1	2
Total¶	**11,303**	**7,444**	**2,620**	**710**	**263**	**255**	**810**

U: Unavailable. —:No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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