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Health Department Use of Social Media to Identify Foodborne Illness — Chicago, Illinois, 2013–2014

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An estimated 55 million to 105 million persons in the United States experience acute gastroenteritis caused by foodborne illness each year, resulting in costs of $2–$4 billion annually (*1*). Many persons do not seek treatment, resulting in underreporting of the actual number of cases and cost of the illnesses (*2*). To prevent foodborne illness, local health departments nationwide license and inspect restaurants (*3*) and track and respond to foodborne illness complaints. New technology might allow health departments to engage with the public to improve foodborne illness surveillance (*4*). For example, the New York City Department of Health and Mental Hygiene examined restaurant reviews from an online review website to identify foodborne illness complaints (*5*). On March 23, 2013, the Chicago Department of Public Health (CDPH) and its civic partners launched FoodBorne Chicago (*6*), a website (https://www.foodbornechicago.org) aimed at improving food safety in Chicago by identifying and responding to complaints on Twitter about possible foodborne illnesses. In 10 months, project staff members responded to 270 Twitter messages (tweets) and provided links to the FoodBorne Chicago complaint form. A total of 193 complaints of possible foodborne illness were submitted through FoodBorne Chicago, and 133 restaurants in the city were inspected. Inspection reports indicated 21 (15.8%) restaurants failed inspection, and 33 (24.8%) passed with conditions indicating critical or serious violations. Eight tweets and 19 complaint forms to FoodBorne Chicago described seeking medical treatment. Collaboration between public health professionals and the public via social media might improve foodborne illness surveillance and response. CDPH is working to disseminate FoodBorne Chicago via freely available open source software

FoodBorne Chicago tracked Twitter messages using a supervised learning algorithm (*7*). The algorithm parsed tweets originating from Chicago that included "food poisoning" to identify specific instances of persons with complaints of foodborne illness. The geographic boundaries used by the algorithm also included some neighboring Chicago suburbs. However, follow-up inspections were conducted only at restaurant locations within the city limits. Tweets identified by the algorithm were reviewed by project staff members for indications of foodborne illness (e.g., stomach cramps, diarrhea, or vomiting) from food prepared outside the home. Project staff members provided feedback on whether each tweet fit the criteria, enabling the tweet identification algorithm to learn and become more effective over time.

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For tweets meeting the criteria, project staff members used Twitter to reply. For example, *Tweet:* "Guess who's got food poisoning? This girl!" *Reply:* "That doesn't sound good. Help us prevent this and report where you ate here (link to Foodborne Chicago and a web form to report the illness)." The information in submitted forms went directly into the Chicago 311 system that handles all requests for nonemergency city services. Descriptive statistics were used to evaluate FoodBorne Chicago over its first 10 months of use and to compare the results of complaint-based health inspections of food establishments resulting from FoodBorne Chicago use with health inspections of food establishments based on complaints not submitted through FoodBorne Chicago. The comparisons did not include reinspections or routine inspections not based on a complaint.

During March 2013–January 2014, FoodBorne Chicago identified 2,241 "food poisoning" tweets originating from Chicago and neighboring suburbs. From these, project staff members identified 270 tweets describing specific instances of persons with complaints of foodborne illness. Eight of the 270 tweets (3.0%) mentioned a visit to a doctor or an emergency department. A total of 193 complaints of food poisoning were submitted through the FoodBorne Chicago web form. However, project staff members were not able to track how many of the 193 came from persons led to the form via Twitter and how many came from persons who visited the FoodBorne Chicago site on their own.

Of the 193 FoodBorne Chicago complaints, 19 (9.8%) persons indicated they sought medical care. The complaints identified 179 Chicago restaurant locations; at 133 (74.3%) locations, CDPH inspectors conducted unannounced health inspections. These 133 inspections amounted to 6.9% of the 1,941 health inspections of food establishments prompted by complaints during the study period. Of the 133 FoodBorne Chicago–prompted health inspections, 122 (91.7%) inspection reports identified at least one health violation, compared with 91.8% of inspection reports following complaints filed outside of FoodBorne Chicago during the same period.

Of the 133 FoodBorne Chicago–prompted health inspections 27 (20.3%) identified at least one critical violation, compared with 16.4% of the 1,808 inspections not prompted by FoodBorne Chicago. Critical violations indicate an "immediate health hazard" resulting in a high risk for foodborne illness. Critical violations must be fixed while the inspector is present or the restaurant fails inspection, has its license suspended, and is closed.* Twenty-nine restaurants (21.8%) reported via FoodBorne Chicago had at least one serious violation compared with 27.8% of restaurants not reported via FoodBorne Chicago. Serious violations indicate a "potential health hazard" that must be corrected within a timeframe determined by the health inspector, typically 5 days. If the serious violation is not fixed on re-inspection, the license is suspended, and the business is closed. Overall, at least one critical or serious violation

*Additional information regarding critical and serious violations is available at http://www.cityofchicago.org/city/en/depts/cdph/provdrs/environ_health/svcs/understand_healthcoderequirementsforfoodestablishments.html.

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was found in 37.6% of inspections prompted by FoodBorne Chicago and 37.2% of inspections from other complaints during the same period.

Some differences were noted in the distribution of specific violations between FoodBorne Chicago inspections and other complaint inspections. For example, 13.5% of FoodBorne Chicago inspections resulted in (critical) violation 3 (i.e., food not stored at appropriate temperatures), compared with 8.2% of other complaint inspections (Table). In addition, 14.3% of other complaint inspections reported (serious) violation 18 (i.e., food not protected from contamination), compared with 6% of FoodBorne inspections.

A total of 21 (15.8%) of the 133 restaurants reported through FoodBorne Chicago failed inspection and were closed; an additional 33 restaurants (24.8%) passed with conditions, indicating that serious or critical violations were identified and corrected during inspection or within a specified timeframe. Of the inspected restaurants with complaints not reported through FoodBorne Chicago, 25.8% failed and 14.2% passed with conditions. During the study period, among all restaurants inspected, FoodBorne Chicago–prompted inspections accounted for 4.3% of failed inspections and 11.4% of pass with conditions inspections.

Discussion

Foodborne illness is a serious and underreported public health problem with high health and financial costs. Emerging evidence on the effectiveness of social media for foodborne illness surveillance suggests mining tweets and restaurant reviews might aid in identifying and taking action on localized foodborne illness

TABLE. Number and percentage of complaints reported via FoodBorne Chicago and from other sources with subsequent Chicago Department of Public Health (CDPH) inspections, by violation type — Chicago, Illinois, March 2013–January 2014

CDPH violation no.	Health standard	Complaints via FoodBorne Chicago No. (%)	Complaints from other sources No. (%)
Critical violations			
V1	All food shall be from sources approved by health authorities and safe for human consumption. Shellfish shall be obtained from an approved source and kept in their original package until sold. Molluscan shell stock shall be obtained in containers bearing legible source identification tags or labels.	2 (1.5)	17 (0.9)
V2	All food establishments that prepare, sell, or store hot food shall have adequate hot food storage facilities. All food establishments that display, prepare, or store potentially hazardous food shall have adequate refrigerated food storage facilities.	10 (7.5)	77 (4.3)
V3	All hot food shall be stored at a temperature of 140°F (60°C) or higher. All cold food shall be stored at a temperature of 40°F (4°C) or less.	18 (13.5)	148 (8.2)
V4	All food shall be protected from contamination and the elements, and so shall all food equipment, containers, utensils, food contact surfaces and devices, and vehicles.	3 (2.3)	3 (0.2)
V5	No person affected with or carrying any disease in a communicable form or afflicted with boils, infected wounds, sores, acute respiratory infection, or intestinal disorder shall work in any area of a food establishment in any capacity where there is a likelihood of that person contaminating food or food contact surfaces.	1 (0.8)	0 —
V6	All employees who handle food shall wash their hands as often as necessary to maintain a high degree of personal cleanliness and should conform to hygienic practices prescribed by the Board of Health.	2 (1.5)	24 (1.3)
V7	Hand washing of all tableware and drinking utensils shall be accomplished by the use of warm water at a temperature of 110°F (43°C) to 120°F (49°C) containing an adequate amount of detergent effective to remove grease and solids.	0 —	1 (0.1)
V8	Equipment and utensils should get proper exposure to the sanitizing solution during the rinse cycle. Bactericidal treatment shall consist of exposure of all dish and utensil surfaces to a rinse of clean water at a temperature of not less than 180°F (82°C).	3 (2.3)	24 (1.3)
V9	All food establishments shall be provided with an adequate supply of hot and cold water under pressure properly connected to the city water supply.	0 —	28 (1.5)
V10	In food establishments, there shall be adequate sewage and waste water disposal facilities that comply with all requirements of the plumbing section of the Municipal Code of Chicago.	0 —	8 (0.4)
V11	Adequate and convenient toilet facilities shall be provided. They should be properly designed, maintained, and accessible to employees at all times.	1 (0.8)	30 (1.7)
V12	Adequate and convenient hand washing facilities shall be provided for all employees.	1 (0.8)	36 (2.0)
V13	All necessary control measure shall be used to effectively minimize or eliminate the presence of rodents, roaches, and other vermin/insect infestations.	0 —	8 (0.4)
V14	A separate and distinct offense shall be deemed to have been committed for each serious violation that is not corrected upon re-inspection by the health authority.	0 —	3 (0.2)

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TABLE. (*Continued*) Number and percentage of complaints reported via FoodBorne Chicago and from other sources with subsequent Chicago Department of Public Health (CDPH) inspections, by violation type — Chicago, Illinois, March 2013–January 2014

CDPH violation no.	Health standard	Complaints via FoodBorne Chicago No. (%)	Complaints from other sources No. (%)
Serious violations			
V15	Food once served to a consumer shall not be re-served, with the exception of packaged food remaining in its original, unopened package.	0 —	0 —
V16	All food should be properly protected from contamination during storage, preparation, display, service, and transportation.	3 (2.3)	46 (2.5)
V17	Thawing frozen food for further processing shall be accomplished by storage in a refrigerator at 40°F (4°C) or less, or by other approved method.	0 —	0 —
V18	All necessary control measures shall be used to effectively minimize or eliminate the presence of rodents, roaches, and other vermin and insects on the premises of all food establishments, in food-transporting vehicles, and in vending machines.	8 (6.0)	259 (14.3)
V19	The area outside of the establishment used for the storage of garbage shall be clean at all times and shall not constitute a nuisance.	3 (2.3)	46 (2.5)
V20	All garbage and rubbish containing food wastes shall, prior to disposal, be stored in metal containers with tight fitting lids and shall be kept covered except when opened for the disposal or removal of garbage.	0 —	0 —
V21	A certified food service manager must be present in all establishments at which potentially hazardous food is prepared or served.	10 (7.5)	135 (7.5)
V22	All dishwashing machines shall maintain proper water pressure and must be provided with suitable thermometers, chemical test kits, and gauge cocks.	0 —	1 (0.1)
V23	Dishes and other utensils shall be rinsed or scraped to remove gross food particles and other soil before washing.	0 —	0 —
V24	All dishwashing machines must be of a type that complies with all requirements of the plumbing section of the Municipal Code of Chicago and Rules and Regulation of the Board of Health	3 (2.3)	30 (1.7)
V25	Only such poisonous and toxic materials as are required to maintain sanitary conditions may be used in food establishments and they shall not be used in any hazardous manner.	0 —	2 (0.1)
V26	When toilet and lavatory facilities are provided for the patrons of food establishments, such facilities shall be adequate in number, convenient, accessible, properly designed, and installed according to the municipal code.	0 —	20 (1.1)
V27	In all food establishments, toilet facilities shall be kept clean and in good repair and shall include an adequate supply of hot and cold or tempered water, soap, and approved sanitary towels or other approved hand-drying devices.	0 —	1 (0.1)
V28	One copy of the Food Inspection Report Summary must be displayed and visible to all customers.	3 (2.3)	14 (0.8)
V29	A separate and distinct offense shall be deemed to have been committed for each minor violation that is not corrected upon reinspection by the health authority.	5 (3.8)	67 (3.7)

complaints that would otherwise go unreported (*5,8,9*). Using a new surveillance and response strategy, the CDPH identified and responded to 270 tweets about foodborne illness over 10 months in the Chicago area; 193 Chicago FoodBorne forms reporting foodborne illness were filed during this period. The majority of the 193 forms did not indicate that medical treatment was sought and so would likely not have been included in the usual surveillance numbers nor prompted inspections by the health department. Twenty-one of the reported restaurants failed inspection and were closed; 33 additional restaurants passed with conditions. Rates of critical and serious violations and failing inspections prompted by FoodBorne Chicago complaints were similar to those from inspections in response to other complaints during the same period.

The findings in this report are subject to at least two limitations. First, the Twitter application programming interface does not allow precise geographic filtering, and FoodBorne Chicago only used the keyword "food poisoning" to identify tweets. Second, it was not possible to determine how many of the 193 web form complaints were from persons directed to the form via Twitter. Project staff members were able to link 30 tweets directly to a corresponding complaint when report submitters clicked on the link in the "reply tweet" to access and complete the form. However, the number of persons who tweeted, did not click the link, and later accessed the Foodborne Chicago web form is unknown.

CDPH food inspectors and supervisors initially were concerned that use of Twitter would overburden them with increased inspections. However, by understanding the process better and seeing the success in finding violations, CDPH staff members have become supportive of obtaining potential foodborne illness information via Twitter.

CDPH and its partners are actively working to improve and disseminate the FoodBorne Chicago program. In an effort to increase the effectiveness of staff replies to complaints via Twitter, CDPH held four focus groups and plans an online survey. In addition, CDPH is currently working with

What is already known on this topic?

Foodborne illness is a serious and underreported public health problem with high health and financial costs. Local health departments nationwide license and inspect restaurants to prevent foodborne illness and track and respond to foodborne illness complaints. Emerging evidence on the effectiveness of social media for foodborne illness surveillance suggests mining tweets and restaurant reviews might aid in identifying and taking timely action on sources of foodborne illness that would otherwise go unreported.

What is added by this report?

A new open-source surveillance and response tool was used to identify and respond to tweets about foodborne illness in Chicago. Over a 10-month period, the tool identified 133 Chicago-area restaurants that were subsequently inspected. Of these, 21 (15.8%) failed inspection, and 33 (24.8%) passed with conditions.

What are the implications for public health practice?

New technology applied to widely used social media platforms might allow health departments to engage the public to improve foodborne illness surveillance.

the Boston Public Health Commission and the New York City Department of Health and Mental Hygiene to adapt FoodBorne Chicago for use in those two cities. FoodBorne Chicago also is available as open-source software on GitHub, an online host for sharing computer code with the public or a private audience.[†]

[†] Additional information is available at https://github.com/smartchicago/foodborne.

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Sugar-Sweetened Beverage Consumption Among Adults — 18 States, 2012

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Reducing consumption of calories from added sugars is a recommendation of the 2010 Dietary Guidelines for Americans* and an objective of *Healthy People 2020*.† Sugar-sweetened beverages (SSB) are major sources of added sugars in the diets of U.S. residents (*1*). Daily SSB consumption is associated with obesity and other chronic health conditions, including diabetes and cardiovascular disease (*2*). U.S. adults consumed an estimated average of 151 kcal/day of SSB during 2009–2010, with regular (i.e., nondiet) soda and fruit drinks representing the leading sources of SSB energy intake (*3,4*). However, there is limited information on state-specific prevalence of SSB consumption. To assess regular soda and fruit drink consumption among adults in 18 states, CDC analyzed data from the 2012 Behavioral Risk Factor Surveillance System (BRFSS). Among the 18 states surveyed, 26.3% of adults consumed regular soda or fruit drinks or both ≥1 times daily. By state, the prevalence ranged from 20.4% to 41.4%. Overall, consumption of regular soda or fruit drinks was most common among persons aged 18–34 years (24.5% for regular soda and 16.6% for fruit drinks), men (21.0% and 12.3%), non-Hispanic blacks (20.9% and 21.9%), and Hispanics (22.6% and 18.5%). Persons who want to reduce added sugars in their diets can decrease their consumption of foods high in added sugars such as candy, certain dairy and grain desserts, sweetened cereals, regular soda, fruit drinks, sweetened tea and coffee drinks, and other SSBs. States and health departments can collaborate with worksites and other community venues to increase access to water and other healthful beverages.§

BRFSS is an annual, state-based, random-digit–dialed landline and cell phone survey of U.S. adults (aged ≥18 years) that assesses the prevalence of preventive health practices and risk factors for chronic diseases and other conditions.¶ It uses a complex, multistage cluster sampling design to select a sample representing the civilian noninstitutionalized U.S. adult population in the 50 states, District of Columbia, and three U.S. territories. Weighting is used to adjust for nonresponse, noncoverage, and differences in probably of selection. The median response rate for the 18 states included in this report was 46.2% (range = 27.7%–60.4%).**

In 2012, BRFSS included an optional module with questions about SSB consumption: "During the past 30 days, how often did you drink regular soda or pop that contains sugar? Do not include diet soda or diet pop." and "During the past 30 days, how often did you drink sweetened fruit drinks, such as Kool-Aid, cranberry juice cocktail, and lemonade? Include fruit drinks you made at home and added sugar to." Respondents could report monthly, weekly, or daily consumption. All responses were subsequently converted to daily consumption. Daily intake of regular soda, fruit drinks, or both was calculated by summing the daily frequencies for regular soda and fruit drinks. Responses were categorized as none, <1 time/day, and ≥1 times/day. A total of 115,291 adults from the 18 states that offered the module responded to the SSB questions. A total of 1,900 respondents with missing responses to either the regular soda or fruit drink questions were excluded, leaving an analytic sample of 113,391 adults. Chi-square tests were used to determine whether regular soda and fruit drink consumption differed by age group, sex, and race/ethnicity for each state, with $p<0.05$ as the criterion for statistical significance. Estimates were not reported if a sample size was <50 or the relative standard error was ≥30%.

In 2012, 26.3% of respondents reported consuming regular soda, fruit drinks, or both ≥1 times daily (17.1% for regular soda and 11.6% for fruit drinks). The prevalence among states was highest in Mississippi (41.4%), followed by Tennessee (39.2%) (Table 1). The prevalence of regular soda consumption ≥1 times daily was highest in Mississippi (32.4%) and Tennessee (30.2%), and the prevalence of fruit drink consumption was highest in Nevada (18.7%), Mississippi (17.0%), and Tennessee (16.5%).

Overall, regular soda and fruit drink consumption ≥1 times daily was most common among persons aged 18–34 years (24.5% and 16.6% for daily regular soda and fruit drink consumption, respectively), men (21.0% and 12.3%), non-Hispanic blacks (20.9% and 21.9%), and Hispanics (22.6% and 18.5%) (Table 2). In most states, regular soda consumption was most common among persons aged 18–34 years and men. Mississippi and Tennessee had the highest prevalence of regular soda consumption ≥1 times daily among those aged 18–34 years (47.4% and 40.0%, respectively) and men (36.8% and 33.7%).

In most states, fruit drink consumption ≥1 times daily was most common among persons aged 18–34 years, non-Hispanic

* Additional information available at http://www.health.gov/dietaryguidelines/dga2010/dietaryguidelines2010.pdf.
† Additional information available at http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=29.
§ Additional information available at http://www.iom.edu/~/media/files/report%20files/2012/apop/apop_insert.pdf.
¶ Additional information available at http://www.cdc.gov/brfss/annual_data/annual_2012.html.
** Additional information available at http://www.cdc.gov/brfss/annual_data/2012/pdf/summarydataqualityreport2012_20130712.pdf.

TABLE 1. Prevalence* of regular soda† or fruit drink consumption among adults, by state — Behavioral Risk Factor Surveillance System, 18 states, 2012

State (no. respondents)	Consumption of regular soda, fruit drinks, or both			Regular soda consumption			Fruit drink consumption		
	None	<1 time/day	≥1 times/day	None	<1 time/day	≥1 times/day	None	<1 time/day	≥1 times/day
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Overall (11,3391)	**28.5 (27.8–29.2)**	**45.2 (44.4–46.1)**	**26.3 (25.5–27.0)**	**41.6 (40.8–42.4)**	**41.3 (40.5–42.2)**	**17.1 (16.5–17.7)**	**52.8 (52.0–53.6)**	**35.6 (34.8–36.4)**	**11.6 (11.0–12.2)**
California (3,998)	29.0 (27.0–30.9)	48.1 (45.9–50.4)	22.9 (20.9–24.9)	42.8 (40.6–45.0)	44.0 (41.7–46.3)	13.2 (11.6–14.8)	48.2 (46.0–50.4)	41.8 (39.5–44.0)	10.0 (8.6–11.5)
Delaware (5,025)	29.6 (28.0–31.2)	43.8 (41.9–45.7)	26.6 (24.8–28.4)	41.6 (39.7–43.4)	40.7 (38.8–42.6)	17.7 (16.1–19.3)	55.3 (53.4–57.3)	33.1 (31.3–35.0)	11.5 (10.2–12.9)
Georgia (5,410)	24.1 (22.6–25.6)	42.8 (40.9–44.7)	33.1 (31.3–35.0)	36.4 (34.7–38.2)	40.7 (38.8–42.5)	22.9 (21.2–24.6)	51.6 (49.7–53.5)	34.2 (32.3–36.0)	14.2 (12.8–15.6)
Hawaii (7,152)	32.0 (30.4–33.6)	47.6 (45.8–49.4)	20.4 (18.9–21.9)	44.7 (42.9–46.4)	43.2 (41.5–45.0)	12.1 (10.9–13.3)	57.0 (55.2–58.5)	32.9 (31.2–34.6)	10.1 (8.9–11.2)
Iowa (3,277)	28.3 (26.5–30.1)	43.4 (41.3–45.6)	28.3 (26.2–30.4)	39.6 (37.6–41.7)	38.1 (36.0–40.2)	22.2 (20.3–24.2)	59.1 (57.0–61.3)	33.1 (31.0–35.2)	7.8 (6.5–9.1)
Kansas (5,616)	27.2 (25.8–28.6)	42.5 (40.8–44.3)	30.3 (28.5–32.0)	36.5 (34.9–38.2)	39.7 (37.9–41.4)	23.8 (22.1–25.5)	59.2 (57.4–61.1)	31.2 (29.4–32.9)	9.6 (8.4–10.8)
Maryland (5,760)	29.7 (27.8–31.6)	46.9 (44.5–49.3)	23.4 (21.2–25.6)	42.6 (40.3–44.8)	44.0 (41.6–46.4)	13.4 (11.7–15.2)	50.8 (48.5–53.2)	38.9 (36.5–41.3)	10.3 (8.7–11.9)
Minnesota (11,224)	27.8 (26.8–28.9)	47.8 (46.6–49.1)	24.4 (23.2–25.5)	39.8 (38.6–41.0)	42.3 (41.0–43.5)	17.9 (16.9–19.0)	56.5 (55.3–57.8)	35.5 (34.3–36.7)	8.0 (7.2–8.7)
Mississippi (7,242)	23.3 (22.0–24.6)	35.2 (33.7–36.8)	41.4 (39.8–43.1)	30.5 (29.0–31.9)	37.1 (35.5–38.7)	32.4 (30.7–34.1)	56.9 (55.2–58.6)	26.1 (24.6–27.6)	17.0 (15.6–18.4)
Montana (8,154)	29.8 (28.5–31.0)	47.5 (46.1–49.0)	22.7 (21.4–24.0)	41.2 (39.8–42.6)	43.0 (41.5–44.4)	15.8 (14.7–16.9)	60.4 (59.0–61.8)	30.9 (29.6–32.3)	8.7 (7.8–9.5)
Nebraska (11,709)	25.4 (24.3–26.4)	45.8 (44.5–47.0)	28.9 (27.7–30.0)	37.4 (36.2–38.5)	40.9 (39.6–42.1)	21.8 (20.7–22.9)	54.8 (53.5–56.1)	35.2 (34.0–36.5)	10.0 (9.1–10.8)
Nevada (4,426)	23.2 (21.6–24.9)	40.5 (38.3–42.7)	36.3 (34.1–38.4)	36.9 (34.9–39.0)	39.2 (37.0–41.3)	23.9 (21.9–25.8)	48.7 (46.5–50.8)	32.7 (30.5–34.8)	18.7 (16.8–20.5)
New Hampshire (7,020)	35.1 (33.6–36.6)	44.1 (42.4–45.8)	20.8 (19.2–22.4)	49.9 (48.2–51.6)	36.2 (34.6–37.9)	13.9 (12.5–15.3)	60.0 (58.2–61.7)	30.8 (29.1–32.4)	9.2 (8.0–10.5)
New Jersey (4,693)	32.6 (30.8–34.5)	44.6 (42.5–46.8)	22.7 (20.9–24.6)	47.9 (45.8–50.0)	38.9 (36.8–41.0)	13.2 (11.6–14.8)	55.3 (53.2–57.5)	31.5 (29.5–33.6)	13.1 (11.6–14.7)
New York (5,230)	30.6 (28.9–32.3)	47.1 (45.1–49.0)	22.3 (20.5–24.0)	46.2 (44.2–48.1)	41.6 (39.6–43.5)	12.3 (10.9–13.7)	54.6 (52.6–56.6)	33.0 (31.1–34.9)	12.4 (10.9–13.9)
Oklahoma (3,822)	23.6 (22.0–25.3)	41.9 (39.8–44.0)	34.5 (32.4–36.6)	32.8 (30.9–34.8)	39.5 (37.3–41.6)	27.7 (25.7–29.7)	57.2 (55.0–59.3)	32.8 (30.7–34.9)	10.0 (8.6–11.5)
South Dakota (7,488)	28.1 (24.5–29.7)	45.0 (43.2–46.8)	27.0 (25.3–28.6)	38.5 (36.8–40.3)	39.8 (38.0–41.6)	21.7 (20.1–23.2)	59.2 (57.5–61.0)	33.4 (31.7–35.1)	7.3 (6.4–8.3)
Tennessee (6,145)	26.3 (24.8–27.8)	34.5 (32.8–36.1)	39.2 (37.5–41.0)	35.5 (33.8–37.1)	34.3 (32.7–36.0)	30.2 (28.5–31.9)	54.8 (53.0–56.5)	28.7 (27.1–30.4)	16.5 (15.1–17.9)

Abbreviation: CI = confidence interval.
* Weighted percentages might not add to 100% because of rounding.
† Nondiet soda.

blacks, and Hispanics (Table 3). Mississippi and Nevada had the highest prevalence among those aged 18–34 years (28.7% and 26.6%, respectively). Tennessee and Nevada had the highest prevalence among non-Hispanic blacks (30.5% and 28.7%, respectively). Nevada and Nebraska had the highest prevalence among Hispanics (33.8% and 27.8%%, respectively).

Discussion

In 2012, about one in four adults reported consuming regular soda, fruit drinks, or both ≥1 times daily in the 18 states surveyed. The states with the highest prevalence of daily consumption of regular soda, fruit drinks, or both were Mississippi and Tennessee. Further, daily regular soda and fruit drink consumption was most common among those aged 18–34 years, men, non-Hispanic blacks, and Hispanics. Reducing SSB consumption as part of a healthy lifestyle might help with weight management and reduce the risk for chronic diseases among U.S. adults. Persons who want to reduce their daily added sugar intake can consider replacing their consumption of SSB with healthier drinking options (e.g., water, unsweetened tea, and fat-free milk).

These data from respondents in the 18 states that administered the optional SSB module as part of BRFSS in 2012 indicated that 26.3% of U.S. adults drank regular soda, fruit drinks or both daily. In contrast, data from the National Health and Nutrition Examination Survey (NHANES) indicated that the prevalence of daily SSB consumption

TABLE 2. Prevalence* of consumption of regular soda (i.e., nondiet) ≥1 times/day among adults, by age group, sex, race/ethnicity, and state — Behavioral Risk Factor Surveillance System, 18 states, 2012

	Regular soda consumption ≥1 times/day								
	Age group (yrs)†			Sex†		Race/Ethnicity†			
	18–34	35–54	≥55	Men	Women	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic
State (no. respondents)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Overall§ (11,3391)	**24.5 (23.0–25.9)**	**17.6 (16.6–18.6)**	**10.2 (9.6–10.9)**	**21.0 (20.0–21.9)**	**13.5 (12.8–14.2)**	**15.7 (12.1–16.2)**	**20.9 (19.1–22.7)**	**22.6 (20.4–24.8)**	**10.7 (8.4–13.0)**
Range	**18.3–47.4**	**12.0–33.0**	**6.8–20.1**	**15.3–36.8**	**9.0–28.5**	**8.9–30.0**	**10.8–37.1**	**12.2–43.5**	**4.9–34.2**
California (3,998)	18.5 (15.0–21.9)	13.8 (11.2–16.4)	6.8 (5.1–8.6)	17.2 (14.6–19.8)	9.3 (7.5–11.1)	8.9 (7.0–10.7)	10.8 (4.6–17.1)	21.7 (18.3–25.1)	7.9 (3.7–12.1)
Delaware (5,025)	26.9 (22.9–30.9)	17.4 (14.8–20.0)	10.7 (8.9–12.6)	21.3 (18.6–24.1)	14.4 (12.6–16.2)	16.3 (14.6–18.1)	21.2 (16.9–25.5)	25.0 (15.4–34.6)	—¶
Georgia (5,410)	30.6 (26.5–34.7)	23.8 (21.2–26.5)	14.9 (13.1–16.8)	26.0 (23.2–28.7)	20.1 (18.1–22.1)	21.4 (19.4–23.4)	22.5 (19.3–25.7)	35.8 (27.2–44.4)	18.4 (10.8–26.1)
Hawaii (7,152)	19.0 (16.0–21.9)	12.0 (10.0–14.0)	6.8 (5.6–8.1)	15.3 (13.3–17.2)	9.0 (7.6–10.3)	11.8 (9.4–14.1)	—	15.9 (10.3–21.4)	9.4 (7.9–11.0)
Iowa (3,277)	32.5 (27.6–37.5)	24.8 (21.6–28.0)	11.6 (9.9–13.4)	27.9 (24.7–31.0)	16.9 (14.6–19.3)	21.5 (19.5–23.5)	—	31.5 (19.3–43.7)	—
Kansas (5,616)	35.3 (31.5–39.2)	24.5 (21.7–27.4)	12.9 (11.3–14.5)	28.6 (25.9–31.2)	19.2 (17.3–21.2)	22.9 (21.2–24.6)	23.9 (16.1–31.6)	29.2 (21.2–37.3)	29.2 (17.8–40.7)
Maryland (5,760)	18.4 (13.7–23.1)	14.3 (11.5–17.0)	8.5 (7.0–10.0)	16.3 (13.4–19.3)	10.9 (8.9–12.9)	12.5 (10.4–14.5)	15.8 (12.0–19.5)	—	—
Minnesota (11,224)	28.3 (25.7–30.8)	19.1 (17.4–20.7)	8.5 (7.4–9.5)	23.1 (21.4–24.7)	13.1 (11.9–14.3)	17.2 (16.1–18.2)	19.8 (13.6–26.0)	26.8 (20.1–33.4)	19.5 (13.8–25.1)
Mississippi (7,242)	47.4 (43.5–51.4)	32.0 (29.3–34.7)	19.4 (17.7–21.1)	36.8 (34.1–39.5)	28.5 (26.5–30.6)	28.9 (26.9–31.0)	—	43.5 (28.2–58.7)	32.5 (18.3–46.6)
Montana (8,154)	24.1 (21.3–26.9)	18.5 (16.5–20.5)	7.9 (6.8–8.9)	20.3 (18.5–22.1)	11.5 (10.2–12.8)	14.4 (13.3–15.5)	—	23.7 (12.2–35.1)	23.7 (12.2–35.1)
Nebraska (11,709)	32.8 (30.3–35.3)	23.5 (21.6–25.4)	10.6 (9.5–11.7)	28.9 (27.1–30.6)	15.0 (13.8–16.3)	20.3 (19.2–21.4)	25.0 (18.5–31.5)	31.8 (26.5–37.1)	28.3 (20.5–36.2)
Nevada (4,426)	31.3 (27.0–35.6)	24.8 (21.6–28.1)	16.8 (14.0–19.5)	29.2 (26.1–32.3)	18.8 (16.4–21.1)	21.1 (18.8–23.3)	30.2 (21.7–38.7)	32.2 (27.5–36.9)	15.5 (8.9–22.0)
New Hampshire** (7,020)	25.4 (21.0–29.7)	13.0 (11.0–15.0)	7.0 (6.0–8.1)	17.5 (15.2–19.7)	10.6 (8.8–12.3)	13.7 (12.3–15.2)	—	—	17.4 (9.2–15.5)
New Jersey (4,693)	21.3 (16.9–25.8)	12.4 (10.1–14.7)	8.1 (6.6–9.6)	16.1 (13.6–18.6)	10.6 (8.5–12.6)	10.1 (8.4–11.8)	21.7 (16.1–27.4)	23.3 (17.8–28.7)	—
New York (5,230)	18.3 (14.7–22.0)	11.9 (9.8–14.0)	8.4 (6.7–10.1)	16.0 (13.7–18.3)	9.0 (7.4–10.6)	10.0 (8.6–11.4)	16.6 (11.6–21.6)	19.2 (14.8–23.6)	—
Oklahoma (3,822)	39.2 (34.4–43.9)	27.7 (24.5–30.9)	17.5 (15.4–19.5)	30.0 (26.9–33.1)	25.5 (23.0–28.1)	25.6 (23.4–27.9)	31.4 (22.9–40.0)	32.2 (24.2–40.2)	34.2 (26.7–41.6)
South Dakota (7,488)	33.3 (30.1–36.5)	22.9 (20.1–25.7)	11.4 (9.5–13.3)	29.1 (26.6–31.5)	14.4 (12.7–16.2)	20.2 (18.6–21.7)	—	31.8 (19.1–44.6)	32.6 (26.4–38.7)
Tennessee (6,145)	40.0 (35.9–44.1)	33.0 (30.1–35.9)	20.1 (18.2–22.0)	33.7 (30.9–36.5)	27.1 (25.1–29.1)	30.0 (28.2–31.8)	32.5 (27.6–37.4)	—	26.6 (14.3–38.8)

Abbreviation: CI = confidence interval.
* Weighted percentages might not add to 100% because of rounding.
† All values were p<0.05 by chi-square test.
§ Missing data: 0.5% for age and 2.8% for race/ethnicity.
¶ Data with sample sizes <50 or relative standard errors ≥30% not reported.
** Differences in regular soda consumption by race/ethnicity were not significant.

(including all types of SSB) during 2007–2008 ranged from 50% for adults aged ≥35 years to 73% for adults aged 20–34 years (*3*). Possible reasons for this discrepancy include the following: 1) NHANES used 24-hour dietary recall whereas BRFSS used 30-day recall; 2) other SSB types such as sports and energy drinks, which contribute about 4%–8% of total SSB intake on a given day (*3*), were counted by NHANES but not by BRFSS; 3) NHANES is an in-person survey whereas BRFSS is conducted by telephone; 4) NHANES response rates are generally higher than BRFSS response rates††; and 5) the NHANES data were collected 4–5 years before the BRFSS data; regular soda and fruit drink consumption among adults aged ≥20 years has been decreasing nationally over the last decade (*3,4*).

The reasons for higher SSB consumption in certain states (e.g., Mississippi and Tennessee) are unclear. It could result from differences in the food environment and beverage marketing. For example,

††Additional information available at http://www.cdc.gov/nchs/nhanes.htm.

TABLE 3. Prevalence* of consumption of fruit drinks ≥1 times/day among adults, by age group, sex, race/ethnicity, and state — Behavioral Risk Factor Surveillance System, 18 states, 2012

	Fruit drink consumption ≥1 times/day								
	Age group (yrs)†			Sex†		Race/Ethnicity†			
	18–34	35–54	≥55	Men	Women	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic
State (no. respondents)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Overall§ (11,3391)	**16.6 (15.2–18.1)**	**11.0 (10.1–11.8)**	**7.8 (7.2–8.4)**	**12.3 (11.4–13.1)**	**10.9 (10.2–11.7)**	**8.1 (7.6–8.6)**	**21.9 (19.8–23.9)**	**18.5 (16.4–20.6)**	**8.1 (6.1–10.0)**
Range	**11.1– 28.7**	**6.1–18.8**	**6.0–10.8**	**8.3–20.0**	**5.6–17.4**	**5.9–13.8**	**9.2–30.5**	**8.4–33.8**	**3.8–25.5**
California¶ (3,998)	14.9 (11.3–18.4)	8.7 (6.7–10.7)	6.5 (5.0–7.9)	10.5 (8.3–12.7)	9.6 (7.7–11.4)	5.9 (4.4–7.5)	15.8 (6.9–24.6)	16.9 (13.7–20.1)	5.2 (2.3–8.1)
Delaware (5,025)	18.8 (15.2–22.3)	9.8 (7.7–11.8)	7.4 (6.1–8.7)	13.1 (10.9–15.4)	10.1 (8.5–11.7)	8.8 (7.5–10.2)	19.2 (15.2–23.2)	16.9 (8.8–24.9)	—**
Georgia¶ (5,410)	19.2 (15.8–22.6)	13.7 (11.5–15.9)	10.1 (8.7–11.5)	14.3 (12.2–16.5)	14.1 (12.3–15.6)	10.3 (8.9–11.6)	22.2 (19.0–25.5)	14.4 (8.1–20.7)	—
Hawaii (7,152)	14.5 (11.9–17.2)	8.9 (6.9–10.9)	7.5 (6.1–8.9)	11.4 (9.6–13.2)	8.7 (7.4–10.1)	7.2 (5.6–8.9)	—	18.3 (11.7–24.8)	9.2 (7.5–10.8)
Iowa¶ (3,277)	12.1 (8.6–15.6)	6.1 (4.3–7.8)	6.0 (4.7–7.2)	8.3 (6.4–10.3)	7.3 (5.5–9.0)	7.0 (5.7–8.2)	—	18.6 (8.0–29.1)	—
Kansas (5,616)	15.4 (12.3–18.4)	7.3 (5.6–9.1)	6.8 (5.6–7.9)	11.9 (9.8–14.0)	7.4 (6.2–8.6)	7.2 (6.2–8.2)	28.6 (20.0–37.2)	18.3 (11.6–24.9)	—
Maryland¶ (5,760)	15.0 (10.6–19.4)	9.8 (7.7–12.0)	7.0 (5.4–8.5)	11.9 (9.3–14.5)	8.8 (6.9–10.8)	8.2 (6.4–10.0)	13.4 (10.2–16.7)	17.0 (7.9–26.1)	—
Minnesota (11,224)	11.1 (9.3–13.0)	6.9 (5.8–8.0)	6.5 (5.6–7.4)	9.3 (8.2–10.4)	6.7 (5.7–7.7)	6.6 (5.9–7.2)	23.5 (16.5–30.5)	14.5 (9.6–19.4)	11.3 (7.1–15.5)
Mississippi¶ (7,242)	28.7 (25.1–32.4)	16.1 (13.8–18.4)	7.7 (6.7–8.7)	18.7 (16.4–21.1)	15.5 (13.8–17.2)	10.9 (9.3–12.4)	27.6 (24.7–30.5)	—	—
Montana (8,154)	12.6 (10.3–14.9)	7.7 (6.3–9.0)	6.7 (5.7–7.7)	10.5 (9.0–11.9)	6.9 (5.9–7.9)	7.5 (6.6–8.3)	—	—	25.5 (19.7–31.3)
Nebraska (11,709)	16.0 (14.0–18.1)	8.5 (7.1–9.8)	6.0 (5.2–6.8)	12.4 (11.0–13.8)	7.7 (6.7–8.7)	7.4 (6.6–8.1)	21.8 (15.3–28.4)	27.8 (22.5–33.1)	21.2 (14.0–28.4)
Nevada¶ (4,426)	26.6 (22.3–30.8)	18.8 (15.7–21.9)	12.1 (9.8–14.4)	20.0 (17.2–22.8)	17.4 (14.9–19.8)	11.5 (9.7–13.3)	28.7 (20.2–37.2)	33.8 (28.9–38.5)	15.5 (9.3–21.7)
New Hampshire¶ (7,020)	15.7 (11.9–19.5)	7.3 (5.8–8.9)	6.8 (5.8–7.9)	10.8 (9.0–12.6)	7.8 (6.2–9.4)	8.9 (7.7–10.0)	—	—	—
New Jersey (4,693)	19.8 (15.4–24.3)	12.3 (10.1–14.4)	9.2 (7.7–10.8)	13.9 (11.6–16.3)	12.4 (10.3–14.4)	8.7 (7.1–10.3)	25.9 (20.0–31.8)	24.4 (19.1–29.7)	—
New York¶ (5,230)	15.3 (11.8–18.8)	13.7 (11.1–16.3)	8.9 (7.0–10.8)	12.3 (10.0–14.5)	12.5 (10.4–14.5)	7.8 (6.6–9.1)	23.2 (17.3–29.2)	19.0 (14.4–23.6)	—
Oklahoma¶ (3,822)	16.4 (12.7–20.0)	8.9 (6.8–11.0)	5.4 (4.2–6.6)	10.5 (8.4–12.6)	9.6 (7.7–11.5)	7.0 (5.6–8.3)	23.5 (14.6–32.3)	26.1 (18.7–33.6)	10.6 (6.0–15.2)
South Dakota (7,488)	12.0 (9.8–14.2)	6.8 (4.9–8.6)	4.2 (3.1–5.3)	9.1 (7.5–10.8)	5.6 (4.5–6.7)	6.0 (5.0–6.9)	—	—	18.7 (13.3–24.2)
Tennessee¶ (6,145)	24.4 (20.8–28.1)	16.3 (14.0–18.6)	10.8 (9.3–12.3)	17.9 (15.6–20.2)	15.3 (13.5–17.0)	13.8 (12.4–15.2)	30.5 (25.7–35.3)	—	—

Abbreviation: CI = confidence interval.
* Weighted percentages might not add to 100% because of rounding.
† All values were p<0.05 by chi-square test.
§ Missing data: 0.5% for age and 2.7% for race/ethnicity.
¶ Differences in fruit drink consumption by sex were not significant.
** Data with sample sizes <50 or relative standard errors ≥30% not reported.

supermarkets in the southern region of the United States apportion more advertising space in sales circulars to SSB than do supermarkets in other regions, possibly increasing likelihood of SSB consumption (*5*). A previous study reported that the diet quality of adults in the lower Mississippi Delta, assessed by the Healthy Eating Index, was lower than other areas of the United States (*6*). This difference could be attributed to lower socioeconomic status, cultural factors, and food availability and accessibility in the area.

Somewhat similar to the present study, other researchers also have reported that younger adults (aged 20–34 years), men, non-Hispanic blacks, and Hispanics are more likely to consume SSB daily (*3,4*) compared with others. Possible reasons why these groups consume SSB more often might include taste preference, family influence, eating outside of the home, greater exposure to SSB marketing,§§

§§ Additional information available at http://www.aacorn.org/uploads/files/AACORNSSBBrief2011.pdf.

availability and affordability of SSB in particular communities or neighborhoods, and limited knowledge of the caloric content of SSB and their potential contribution to obesity (*7,8*). For example, the proportion of adults who knew the approximate calorie content of a 24-ounce soda was lowest among non-Hispanic blacks (*8*). Another explanation for higher SSB consumption could be lower health literacy in some subpopulations, especially among men and blacks (*9*). Further research could help identify why these disparities exist and how they might be addressed.

The findings in this report are subject to at least five limitations. First, estimates of regular soda and fruit drink consumption were based on self-report, and respondents might not have accurately reported their consumption; therefore, estimates might be either underestimated or overestimated. Second, the consumption frequency of only two types of SSB (regular soda and fruit drinks) was assessed; other types of SSB (e.g., sports and energy drinks, sweetened tea, and coffee drinks) were not included. Third, though it was possible to estimate the prevalence of the frequency of intake as SSB consumption per day, it was not possible to determine the actual amount of SSB consumed. Therefore, the daily calories from SSB could not be determined. Fourth, response bias might have affected the results because survey response rates ranged from 27.6% to 60.4% among states. Finally, these analyses were limited to adults in the 18 states with SSB data available, which limits the generalizability of the findings to the entire U.S. adult population.

SSB such as regular soda and fruit drinks contain added sugars and are sources of calories but have few, if any, essential nutrients (*3,4*). Because of the potential adverse impact of SSB consumption on diet quality, obesity and other chronic health conditions (*2*), reducing SSB consumption as part of a healthy lifestyle might help with weight management and the reduction of chronic diseases among U.S. adults. These findings among 18 states suggest that certain segments of the U.S. adult population consume regular soda and fruit drinks more often than others. Persons who want to reduce added sugars in their diet can decrease their consumption of regular soda and fruit drinks, which are the leading sources of SSB (*3,4*). States and health departments can support persons in these efforts by developing educational campaigns to inform consumers about beverage options and by helping worksites and other community venues increase access to healthful beverages such as water (*10*).

Acknowledgments

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What is already known on this topic?

Sugar-sweetened beverages (SSB) are major sources of added sugars and calories in U.S. diets, and daily SSB consumption has been associated with obesity, diabetes, and cardiovascular disease. During 2009–2010, U.S. adults consumed an average of 151 kcal/day of SSB, with regular soda and fruit drinks representing the leading sources of SSB energy intake.

What is added by this report?

This is the first state-specific report on daily SSB intake. Among the 18 participating states, the states with the highest prevalence of consumption of regular soda, fruit drinks, or both were Mississippi and Tennessee. Overall, daily regular soda and fruit drink consumption was most common among those aged 18–34 years, men, non-Hispanic blacks, and Hispanics.

What are the implications for public health practice?

The findings from this study suggest that certain segments of the U.S. adult population consume regular soda and fruit drinks more often than others, which might contribute to weight gain and other chronic conditions. States and health departments can support persons deciding to reduce their regular soda and fruit drink consumption through activities that educate and inform consumers about beverage options and that help worksites and other community venues increase access to healthful beverages.

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Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) — United States, 2014–15 Influenza Season

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This report updates the 2013 recommendations by the Advisory Committee on Immunization Practices (ACIP) regarding use of seasonal influenza vaccines (*1*). Updated information for the 2014–15 influenza season includes 1) antigenic composition of U.S. seasonal influenza vaccines; 2) vaccine dose considerations for children aged 6 months through 8 years; and 3) a preference for the use, when immediately available, of live attenuated influenza vaccine (LAIV) for healthy children aged 2 through 8 years, to be implemented as feasible for the 2014–15 season but not later than the 2015–16 season. Information regarding issues related to influenza vaccination not addressed in this report is available in the 2013 ACIP seasonal influenza recommendations (*1*).

For recommendations pertaining to use of influenza vaccines in children, ACIP reviewed data on the relative efficacy and safety of LAIV and inactivated influenza vaccines (IIVs). An adapted version of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to rate the quality of the evidence (*2*). Evidence summary tables and assessment of risk and benefits are available at http://www.cdc.gov/vaccines/acip/recs/grade/table-refs.html. Information in this report reflects discussion during public meetings of ACIP on February 26, 2014, and June 25, 2014. Meeting minutes, information on ACIP membership, and information on conflicts of interest are available at http://www.cdc.gov/vaccines/acip/meetings/meetings-info.html. Modifications were made during review at CDC to update and clarify wording. Any updates will be posted at http://www.cdc.gov/flu.

Recommendations for routine use of vaccines in children, adolescents, and adults are developed by the Advisory Committee on Immunization Practices (ACIP). ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the Director of the Centers for Disease Control and Prevention (CDC) on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized to the greatest extent possible with recommendations made by the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetrics and Gynecology (ACOG). Recommendations for routine use of vaccines in adults are harmonized with recommendations of AAFP, ACOG, and the American College of Physicians (ACP). ACIP recommendations adopted by the CDC Director become agency guidelines on the date published in the Morbidity and Mortality Weekly Report (MMWR). *Additional information regarding ACIP is available at http://www.cdc.gov/vaccines/acip.*

Groups Recommended for Vaccination and Timing of Vaccination

Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications. Vaccination optimally should occur before onset of influenza activity in the community. Health care providers should offer vaccination soon after vaccine becomes available (by October, if possible). Vaccination should be offered as long as influenza viruses are circulating. Children aged 6 months through 8 years who require 2 doses (see "Vaccine Dose Considerations for Children Aged 6 Months through 8 Years") should receive their first dose as soon as possible after vaccine becomes available, and the second dose ≥4 weeks later. To avoid missed opportunities for vaccination, providers should offer vaccination during routine health care visits and hospitalizations when vaccine is available.

Antibody levels induced by vaccine decline postvaccination (*3*–*6*). Although a 2008 literature review found no clear evidence of more rapid decline among the elderly (*7*), a 2010 study noted a statistically significant decline in titers 6 months postvaccination among persons aged ≥65 years (although titers still met European Medicines Agency levels considered adequate for protection) (*6*). A case-control study conducted in Navarre, Spain, during the 2011–12 season revealed a decline in vaccine effectiveness primarily affecting persons aged ≥65 years (*8*). Although delaying vaccination might permit greater immunity later in the season, deferral might result in missed opportunities to vaccinate and difficulties in vaccinating a population within a limited time. Vaccination programs should balance maximizing likelihood of persistence of vaccine-induced protection through the season with avoiding missed opportunities to vaccinate or vaccinating after influenza virus circulation begins.

Influenza Vaccine Composition for the 2014–15 Season

For 2014–15, U.S.-licensed influenza vaccines will contain the same vaccine virus strains as those in the 2013–14 vaccine. Trivalent influenza vaccines will contain hemagglutinin (HA) derived from an A/California/7/2009 (H1N1)-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like (Yamagata lineage) virus. Quadrivalent influenza vaccines will contain these antigens, and also a B/Brisbane/60/2008-like (Victoria lineage) virus (*9*).

Available Vaccine Products and Indications

Various influenza vaccine products are anticipated to be available during the 2014–15 season (Table). These recommendations apply to all licensed influenza vaccines used within Food and Drug Administration–licensed indications. Differences between ACIP recommendations and labeled indications have been noted (Table).

Vaccine Dose Considerations for Children Aged 6 Months through 8 Years

Children aged 6 months through 8 years require 2 doses of influenza vaccine (administered ≥4 weeks apart) during their first season of vaccination to optimize immune response (*10,11*). In one study conducted over two seasons during which the influenza A(H1N1) vaccine virus strain did not change but the B antigen did change, unprimed children aged 10 through 24 months who received 1 dose of IIV during the fall of each season had similar responses to the unchanged A(H1N1) virus antigen and to the drifted A(H3N2) virus antigen, compared with children aged 6 through 24 months who received 2 doses of the same IIV during the latter season; however, the first group had significantly lower responses to the B antigen (*12*). In determining the appropriate number of doses, previous receipt of vaccine containing 2009 influenza A(H1N1) pandemic antigen (included in monovalent pandemic vaccine during 2009–10 and in seasonal influenza vaccines since the 2010–11 season) also should be considered. In addition, because the strains contained in the 2014–15 seasonal influenza vaccines are identical to those contained in the 2013–14 vaccines, only 1 dose is required for any child aged 6 months through 8 years who previously received ≥1 dose of 2013–14 seasonal influenza vaccine.

Two approaches are recommended for determination of the necessary doses for the 2014–15 season; both are acceptable. The first approach (Figure 1) considers only doses of seasonal influenza vaccine received since July 1, 2010. Where adequate vaccination history from before the 2010–11 season is available, the second approach (Figure 1 [footnote]) may be used.

Considerations for the Use of Live Attenuated Influenza Vaccine and Inactivated Influenza Vaccine when Either is Available and Appropriate

Both LAIV and IIV have been demonstrated to be effective in children and adults. In adults, most comparative studies have demonstrated either that LAIV and IIV were of similar efficacy or that IIV was more efficacious (*13–18*). However, several studies have demonstrated superior efficacy of LAIV in children. A randomized controlled trial conducted among 7,852 children aged 6–59 months demonstrated a 55% reduction in culture-confirmed influenza among children who received LAIV compared with those who received IIV. LAIV efficacy was higher than that of IIV against both antigenically drifted and well-matched influenza viruses (*19*). Compared with IIV, LAIV provided 32% increased protection in preventing culture-confirmed influenza in children and adolescents aged 6–17 years with asthma (*20*) and 52% increased protection in children aged 6–71 months who had previously experienced recurrent respiratory tract infections (*21*).

ACIP reviewed the evidence pertaining to the relative efficacy of LAIV and IIV for healthy children, and concluded that LAIV is more efficacious than IIV against laboratory-confirmed influenza among younger children (based on studies including children aged 6 through 71 months), with overall moderate quality of evidence. Risks for harms assessed (including fever, wheezing, and serious adverse events) appear to be similar for LAIV and IIV. Data pertaining to relative efficacy are more limited in older children and teens. There are insufficient data to determine at what age or with how many successive seasons of vaccination the relatively greater efficacy of LAIV diminishes in children aged 6 through 18 years.

For children and adults with chronic medical conditions conferring a higher risk for influenza complications, data on the relative safety and efficacy of LAIV and IIV are limited. A study of LAIV and IIV among children aged 6 through 17 years with asthma noted no significant difference in wheezing events after LAIV (*20*). Available data are insufficient to determine the level of severity of asthma for which administration of LAIV would be inadvisable.

For 2014–15, ACIP recommends the following:

1. All persons aged ≥6 months should receive influenza vaccine annually. Influenza vaccination should not be delayed to procure a specific vaccine preparation if an appropriate one is already available.
2. When immediately available, LAIV should be used for healthy children aged 2 through 8 years who have no contraindications or precautions (Category A). If LAIV is not immediately available, IIV should be used. Vaccination should not be delayed to procure LAIV. The age of 8 years

TABLE. Influenza vaccines — United States, 2014–15 influenza season*

Trade name	Manufacturer	Presentation	Mercury content from thimerosal (μg Hg/0.5 mL)	Ovalbumin content (μg/0.5mL)	Age indications	Route
Inactivated influenza vaccine, quadrivalent (IIV4), standard dose						
Contraindications: Severe allergic reaction to any component of the vaccine, including egg protein, or after previous dose of any influenza vaccine.*						
Precautions: Moderate to severe illness with or without fever; history of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.*						
Fluarix Quadrivalent	GlaxoSmithKline	0.5 mL single-dose prefilled syringe	—	≤0.05	≥3 yrs	IM†
FluLaval Quadrivalent	ID Biomedical Corporation of Quebec (distributed by GlaxoSmithKline)	0.5 mL single-dose prefilled syringe	—	≤0.3	≥3 yrs	IM†
		5.0 mL multidose vial	<25	≤0.3	≥3 yrs	IM†
Fluzone Quadrivalent	Sanofi Pasteur	0.25 mL single-dose prefilled syringe	—	§§§	6–35 mos	IM†
		0.5 mL single-dose prefilled syringe	—	§§§	≥36 mos	IM†
		0.5 mL single-dose vial	—	§§§	≥36 mos	IM†
		5.0 mL multidose vial	25	§§§	≥6 mos	IM†
Inactivated influenza vaccine, trivalent (IIV3), standard dose						
Contraindications: Severe allergic reaction to any component of the vaccine, including egg protein, or after previous dose of any influenza vaccine.*						
Precautions: Moderate to severe illness with or without fever; history of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.*						
Afluria	bioCSL	0.5 mL single-dose prefilled syringe	—	<1	≥9 yrs***	IM†
		5.0 mL multidose vial	24.5	<1	≥9 yrs***	IM†
Fluarix	GlaxoSmithKline	0.5 mL single-dose prefilled syringe	—	≤0.05	≥3 yrs	IM†
FluLaval	ID Biomedical Corporation of Quebec (distributed by GlaxoSmithKline)	0.5 mL single-dose prefilled syringe	—	≤0.3	≥3 yrs	IM†
		5.0 mL multidose vial	<25	≤0.3	≥3 yrs	IM†
Fluvirin	Novartis Vaccines and Diagnostics	0.5 mL single-dose prefilled syringe	≤1	≤1	≥4 yrs	IM†
		5.0 mL multidose vial	25	≤1	≥4 yrs	IM†
Fluzone	Sanofi Pasteur	0.5 mL single-dose prefilled syringe	—	§§§	≥36 mos	IM†
		5.0 mL multidose vial	25	§§§	≥6 mos	IM†
Fluzone Intradermal§	Sanofi Pasteur	0.1 mL prefilled microinjection system	—	§§§	18–64 yrs	ID**
Inactivated influenza vaccine, trivalent, standard dose, cell culture-based (ccIIV3)						
Contraindications: Severe allergic reaction to any component of the vaccine, including egg protein, or after previous dose of any influenza vaccine.*						
Precautions: Moderate to severe illness with or without fever; history of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.*						
Flucelvax	Novartis Vaccines and Diagnostics	0.5 mL single-dose prefilled syringe	—	†††	≥18 yrs	IM†
Inactivated influenza vaccine, trivalent (IIV3), high dose						
Contraindications: Severe allergic reaction to any component of the vaccine, including egg protein, or after previous dose of any influenza vaccine.*						
Precautions: Moderate to severe illness with or without fever; history of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.*						
Fluzone High-Dose††	Sanofi Pasteur	0.5 mL single-dose prefilled syringe	—	§§§	≥65 yrs	IM†
Recombinant influenza vaccine, trivalent (RIV3)						
Contraindications: Severe allergic reaction to any component of the vaccine.*						
Precautions: Moderate to severe illness with or without fever; history of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.*						
FluBlok	Protein Sciences	0.5 mL single-dose vial	—	0	18–49 yrs	IM†
Live attenuated influenza vaccine, quadrivalent (LAIV4)						
Contraindications: Severe allergic reaction to any component of the vaccine, including egg protein, or after previous dose of any influenza vaccine.*						
Concomitant use of aspirin or aspirin-containing medications in children and adolescents.						
In addition, ACIP recommends LAIV4 not be used for pregnant women, immunosuppressed persons, persons with egg allergy, and children aged 2–4 years who have asthma or who have had a wheezing episode noted in the medical record within the past 12 months, or for whom parents report that a health care provider stated that they had wheezing or asthma within the last 12 months.						
LAIV should not be administered to persons who have taken influenza antiviral medications within the previous 48 hours. Persons who care for severely immunosuppressed persons who require a protective environment should not receive LAIV, or should avoid contact with such persons for 7 days after receipt.						
Precautions: Moderate to severe illness with or without fever.*						
History of Guillain-Barré syndrome within 6 weeks of receipt of influenza vaccine.						
Asthma in persons aged 5 years and older.						
Medical conditions which might predispose to higher risk for complications attributable to influenza.						
FluMist Quadrivalent§§	MedImmune	0.2 mL single-dose prefilled intranasal sprayer	—	<0.24 (per 0.2mL)	2–49 yrs	IN

See table footnotes on page 694.

TABLE. (Continued) Influenza vaccines — United States, 2014–15 influenza season*

Abbreviations: IM = intramuscular; ID = intradermal; IN = intranasal; ACIP = Advisory Committee on Immunization Practices.

* Immunization providers should check Food and Drug Administration–approved prescribing information for 2014–15 influenza vaccines for the most complete and updated information, including (but not limited to) indications, contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at http://www.fda.gov/biologicsbloodvaccines/vaccines/approvedproducts/ucm093833.htm.

† For adults and older children, the recommended site of vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh. Specific guidance regarding site and needle length for intramuscular administration can be found in ACIP's *General Recommendations on Immunization* (available at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm).

§ Trivalent inactivated vaccine, intradermal: A 0.1-mL dose contains 9 μg of each vaccine antigen (27 μg total).

** The preferred site is over the deltoid muscle. Fluzone Intradermal is administered using the delivery system included with the vaccine.

†† Trivalent inactivated vaccine, high-dose: A 0.5-mL dose contains 60 μg of each vaccine antigen (180 μg total).

§§ FluMist is shipped refrigerated and stored in the refrigerator at 35°F–46°F (2°C–8°C) after arrival in the vaccination clinic. The dose is 0.2 mL divided equally between each nostril. Health care providers should consult the medical record, when available, to identify children aged 2 through 4 years with asthma or recurrent wheezing that might indicate asthma. In addition, to identify children who might be at greater risk for asthma and possibly at increased risk for wheezing after receiving LAIV, parents or caregivers of children aged 2 through 4 years should be asked, "In the past 12 months, has a health care provider ever told you that your child had wheezing or asthma?" Children whose parents or caregivers answer "yes" to this question and children who have asthma or who had a wheezing episode noted in the medical record within the past 12 months should not receive FluMist.

*** Age indication per package insert is ≥5 years; however, ACIP recommends Afluria not be used in children aged 6 months through 8 years because of increased risk for febrile reactions noted in this age group with bioCSL's 2010 Southern Hemisphere IIV3. If no other age-appropriate, licensed inactivated seasonal influenza vaccine is available for a child aged 5 through 8 years who has a medical condition that increases the child's risk for influenza complications, Afluria can be used; however, providers should discuss with the parents or caregivers the benefits and risks of influenza vaccination with Afluria before administering this vaccine. Afluria may be used in persons aged ≥9 years.

††† Information not included in package insert. Estimated to contain <50 femtograms (5x10-8 μg) of total egg protein (of which ovalbumin is a fraction) per 0.5 mL dose of Flucelvax.

§§§ Available upon request from Sanofi Pasteur (telephone: 1-800-822-2463; e-mail: mis.emails@sanofipasteur.com).

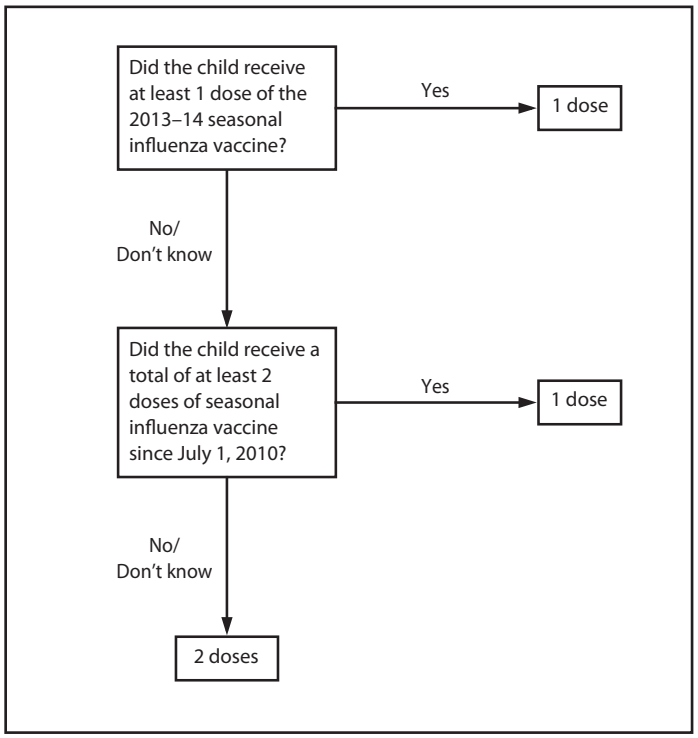
is selected as the upper age limit for this recommendation based on demonstration of superior efficacy of LAIV (ages 2 to 6 years), and for programmatic consistency (8 years is the upper age limit for receipt of 2 doses of influenza vaccine in a previously unvaccinated child). This recommendation should be implemented for the 2014–15 season as feasible, but not later than the 2015–16 season.

3. LAIV should not be used in the following populations:
   - Persons aged <2 years or >49 years;
   - Those with contraindications listed in the package insert:
     - Children aged 2 through 17 years who are receiving aspirin or aspirin-containing products;
     - Persons who have experienced severe allergic reactions to the vaccine or any of its components, or to a previous dose of any influenza vaccine;
   - Pregnant women;
   - Immunosuppressed persons;
   - Persons with a history of egg allergy;
   - Children aged 2 through 4 years who have asthma or who have had a wheezing episode noted in the medical record within the past 12 months, or for whom parents report that a health care provider stated that they had wheezing or asthma within the last 12 months (Table [footnote]). [For those aged ≥5 years with asthma, recommendations are described in item 4 of this list];
   - Persons who have taken influenza antiviral medications within the previous 48 hours.
4. In addition to the groups for whom LAIV is not recommended above, the "Warnings and Precautions" section of the LAIV package insert indicates that persons of any age with asthma might be at increased risk for wheezing after administration of LAIV (*22*), and notes that the safety of LAIV in persons with other underlying medical conditions that might predispose them to complications after wild-type influenza infection (e.g., chronic pulmonary, cardiovascular [except isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus] (*1*)) has not been established. These conditions, in addition to asthma in persons aged ≥5 years, should be considered precautions for the use of LAIV.
5. Persons who care for severely immunosuppressed persons who require a protective environment should not receive LAIV, or should avoid contact with such persons for 7 days after receipt, given the theoretical risk for transmission of the live attenuated vaccine virus.

Influenza Vaccination of Persons with a History of Egg Allergy

With the exceptions of trivalent recombinant influenza vaccine (RIV3 [FluBlok], Protein Sciences) and cell culture-based inactivated influenza vaccine (ccIIV3 [Flucelvax], Novartis), currently available influenza vaccines are prepared by propagation of virus in embryonated chicken eggs. A review of published data (including data on 4,172 patients, 513 of whom were reported to have a history of severe allergic reaction to egg) noted that no occurrences of anaphylaxis were reported, although some milder reactions did occur (*23*), suggesting that severe allergic reactions to egg-based influenza vaccines are unlikely. On this basis, some guidance recommends that no additional measures are needed when administering influenza vaccine to egg-allergic persons (*24*). However, occasional cases of anaphylaxis in egg-allergic persons have been reported to the Vaccine Adverse Event Reporting System (VAERS) after administration of influenza vaccine (*25,26*). In

FIGURE 1. Influenza vaccine dosing algorithm for children aged 6 months through 8 years — Advisory Committee on Immunization Practices, United States, 2014–15 influenza season*



* For simplicity, this algorithm takes into consideration only doses of seasonal influenza vaccine received since July 1, 2010, to determine the number of doses needed for the 2014–15 season. As an alternative approach in settings where vaccination history from before July 1, 2010, is available, if a child aged 6 months through 8 years is known to have received either 1) at least 1 dose of 2013–14 seasonal influenza vaccine, or 2) at least two seasonal influenza vaccines during any previous season, and at least 1 dose of a 2009(H1N1)–containing vaccine (i.e., seasonal vaccine since 2010–11 or the monovalent 2009[H1N1] vaccine), then the child needs only 1 dose for 2014–15. Using this approach, children aged 6 months through 8 years need only 1 dose of vaccine for 2014–15 if they have received any of the following: 1) at least 1 dose of 2013–14 seasonal influenza vaccine; or 2) 2 or more doses of seasonal influenza vaccine since July 1, 2010; or 3) 2 or more doses of seasonal influenza vaccine before July 1, 2010, and 1 or more doses of monovalent 2009(H1N1) vaccine; or 4) 1 or more doses of seasonal influenza vaccine before July 1, 2010, and 1 or more doses of seasonal influenza vaccine since July 1, 2010. Children in this age group for whom one of these conditions is not met require 2 doses for 2014–15.
† Doses should be administered at least 4 weeks apart.

published studies, vaccines containing as much as 0.7 μg/0.5 mL of ovalbumin have been tolerated (*27*,*28*); however, a threshold below which no reactions would be expected is not known (*27*). Among IIVs for which ovalbumin content was disclosed during the 2011–12 through 2013–14 seasons, the reported maximum amounts were ≤1 μg/0.5 mL dose. Ovalbumin is not directly measured for Flucelvax; it is estimated by calculation from the initial content in the reference virus strains to contain less than 5x10-8 μg of total egg protein per 0.5mL dose, of which ovalbumin is a fraction (Novartis, personal communication, 2013). FluBlok is considered egg-free. However, neither Flucelvax nor FluBlok are licensed for use in children aged <18 years.

ACIP recommends the following:

1. Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive influenza vaccine. Because relatively few data are available for use of LAIV in this setting, IIV or trivalent recombinant influenza vaccine (RIV3) should be used. RIV3 may be used for persons aged 18 through 49 years who have no other contraindications. However, IIV (egg- or cell-culture based) may also be used, with the following additional safety measures (Figure 2):
   - Vaccine should be administered by a health care provider who is familiar with the potential manifestations of egg allergy; and
   - Vaccine recipients should be observed for ≥30 minutes for signs of a reaction after administration of each vaccine dose.
2. Persons who report having had reactions to egg involving such symptoms as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or another emergency medical intervention, may receive RIV3 if they are aged 18 through 49 years and there are no other contraindications. If RIV3 is not available or the recipient is not within the indicated age range, IIV should be administered by a physician with experience in the recognition and management of severe allergic conditions (Figure 2).
3. Regardless of allergy history, all vaccines should be administered in settings in which personnel and equipment for rapid recognition and treatment of anaphylaxis are available (*29*).
4. Persons who are able to eat lightly cooked egg (e.g., scrambled egg) without reaction are unlikely to be allergic. Egg-allergic persons might tolerate egg in baked products (e.g., bread or cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy. Egg allergy can be confirmed by a consistent medical history of adverse reactions to eggs and egg-containing foods, plus skin and/or blood testing for immunoglobulin E directed against egg proteins (*30*).
5. For persons with no known history of exposure to egg, but who are suspected of being egg-allergic on the basis of previously performed allergy testing, consultation with a physician with expertise in the management of allergic conditions should be obtained before vaccination (Figure 2). Alternatively, RIV3 may be administered if the recipient is aged 18 through 49 years.
6. A previous severe allergic reaction to influenza vaccine, regardless of the component suspected of being responsible for the reaction, is a contraindication to future receipt of the vaccine.

What is currently recommended?

The Advisory Committee on Immunization Practices (ACIP) recommends that all persons aged ≥6 months without contraindications receive annual vaccinations for protection against seasonal influenza. A number of different seasonal influenza vaccine formulations are available, some of which are licensed for specific age groups or are more appropriate than others for persons with certain medical conditions.

Why are the recommendations being modified now?

CDC and ACIP issue guidance on seasonal influenza vaccination annually. The current document contains updated recommendations made by ACIP in February and June 2014, to be effective for the 2014–15 season.

What are the new recommendations?

Annual influenza vaccination is recommended for all persons aged 6 months and older, as has been recommended since the 2010–11 influenza season. This guidance contains some new information. Because the virus composition of the 2014–15 seasonal influenza vaccine is the same as it was for the 2013–14 season, children aged 6 months through 8 years need only 1 dose of vaccine in 2014–15 if they received ≥1 dose of 2013–14 seasonal influenza vaccine, regardless of previous vaccination history. Other information regarding determining whether 1 or 2 doses are needed is discussed in this report. There are also new recommendations regarding the use of live attenuated influenza vaccine (LAIV) for healthy children aged 2 through 8 years. When immediately available, LAIV should be used for healthy children aged 2 years through 8 years who have no contraindications or precautions. However, inactivated influenza vaccine (IIV) should be used if LAIV is not immediately available. Vaccination should not be delayed to get LAIV.

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ACIP members (membership roster for July 2013–June 2014 available at http://www.cdc.gov/vaccines/acip/committee/members-archive/members-2013-2014.html). Alicia Fry, MD, Jessie Clippard, MPH, Influenza Division, National Center for Immunization and Respiratory Diseases; Oidda Museru, MSN, MPH, Immunization Safety Office, National Center for Emerging and Zoonotic Infectious Diseases, CDC. Laurie DeMarcus, MPH, Katie Tastad, MPH, Shauna Zorich, MD, US Air Force School of Aerospace Medicine. Clarence Creech MD, Kathryn Edwards, MD, Vanderbilt University School of Medicine. The Clinical Immunization Safety Assessment (CISA) Project. ACIP Influenza Work Group.

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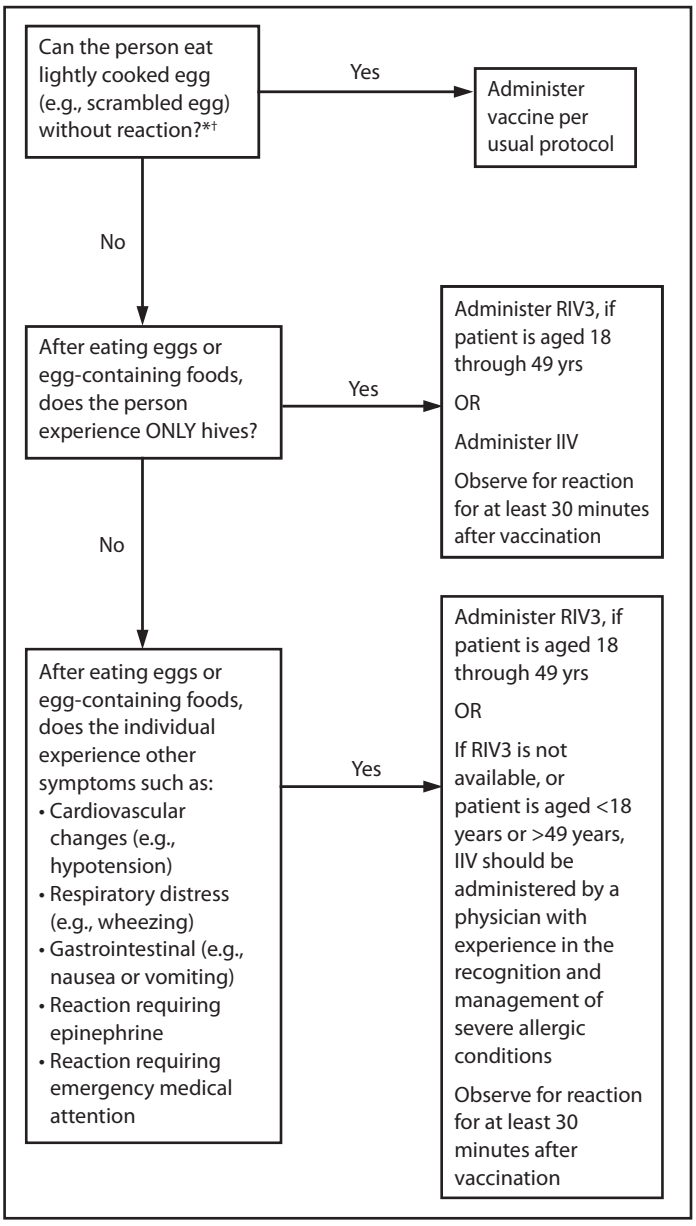
FIGURE 2. Recommendations regarding influenza vaccination of persons who report allergy to eggs — Advisory Committee on Immunization Practices, United States, 2014–15 influenza season



Abbreviations: IIV = inactivated influenza vaccine; RIV3 = recombinant influenza vaccine, trivalent.

* Persons with egg allergy might tolerate egg in baked products (e.g., bread or cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy (Erlewyn-Lajeunesse M, Brathwaite N, Lucas JS, Warner JO. Recommendations for the administration of influenza vaccine in children allergic to egg. BMJ 2009;339:b3680).

† For persons who have no known history of exposure to egg, but who are suspected of being egg-allergic on the basis of previously performed allergy testing, consultation with a physician with expertise in the management of allergic conditions should be obtained before vaccination. Alternatively, RIV3 may be administered if the recipient is aged 18 through 49 years.

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Notes from the Field

Hospitalizations for Respiratory Disease Among Unaccompanied Children from Central America — Multiple States, June–July 2014

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During October 2013–June 2014, approximately 54,000 unaccompanied children, mostly from the Central American countries of El Salvador, Guatemala, and Honduras, were identified attempting entry into the United States from Mexico, exceeding numbers reported in previous years (*1*). Once identified in the United States, U.S. Customs and Border Protection, an agency of the U.S. Department of Homeland Security, processes the unaccompanied children and transfers them to the Office of Refugee Resettlement (ORR), an office of the Administration for Children and Families, U.S. Department of Health and Human Services. ORR cares for the children in shelters until they can be released to a sponsor, typically a parent or relative, who can care for the child while their immigration case is processed. In June 2014, in response to the increased number of unaccompanied children, U.S. Customs and Border Protection expanded operations to accommodate children at a processing center in Nogales, Arizona. ORR, together with the U.S. Department of Defense, opened additional large temporary shelters for the children at Lackland Air Force Base, Texas; U.S. Army Garrison Ft. Sill, Oklahoma; and Naval Base Ventura County, California.

On July 10, 2014, CDC was informed by the California Department of Public Health and ORR about four unaccompanied male children aged 14–16 years with respiratory illnesses at Naval Base Ventura County, three of whom were hospitalized with pneumonia. Among the three patients with pneumonia, two were bacteremic with *Streptococcus pneumoniae*, ultimately determined to be serotype 5, one of whom also had laboratory-confirmed influenza B virus by polymerase chain reaction (PCR). The fourth patient, without pneumonia, had PCR-confirmed influenza A(H1N1)pdm09. Pneumococcal bacteremia is uncommon among U.S. adolescents, particularly serotype 5, with only three such cases identified in the past 10 years by CDC (*2*). In addition, influenza activity in the United States is typically lowest in the middle of summer, and Ventura County had no reports of an unusual increase in influenza activity in the community at the time. ORR asked CDC to investigate the scope of this apparent outbreak and implement measures to interrupt transmission.

During July 6–19, 2014, CDC was informed of other clusters of hospitalized children with respiratory disease, increasing the total to 16 cases. The cases were from Naval Base Ventura County (eight cases), Ft. Sill (three), Lackland Air Force Base (two), a standard ORR shelter near Houston, Texas (two), and the Nogales processing center (one). Cases were in persons aged 14–17 years. Diagnoses included laboratory-confirmed pneumococcal pneumonia with laboratory-confirmed influenza (three cases) and without laboratory-confirmed influenza (four cases), influenza pneumonia (one case), and pneumonia with no identified etiology (eight cases). Five patients experienced septic shock requiring intensive care. No case was fatal. All six cases for which pneumococcal isolates were available were identified as serotype 5, a serotype included in 13-valent pneumococcal conjugate vaccine (PCV13) (Prevnar-13, Pfizer). Of the 16 patients identified in this cluster, 11 were tested for influenza viruses; four (36%) were positive (two for influenza A[H1N1]pdm09, one for influenza B, and one for influenza A by rapid test).

Because of the concern that unaccompanied children were at increased risk for influenza and pneumococcal pneumonia in this outbreak setting and the clinically important interaction between influenza and pneumococcal infections (*3*), CDC recommended that all children residing in temporary or standard ORR shelters receive influenza vaccine and PCV13 in addition to routinely recommended vaccines. Approximately 2,000 children in four affected shelters were vaccinated during July 18–30 with PCV13 and with Food and Drug Administration–approved extended expiration date–specific lots of 2013–14 seasonal influenza vaccine, which includes influenza A(H1N1)pdm09 and influenza B viruses. The shelters reported no serious adverse events.

Although some countries in Central America recommend influenza vaccination for young children, school-aged children generally are not targeted for vaccination (*4*). Routine annual influenza vaccination is recommended for all persons in the United States aged ≥6 months (*5*). Because influenza activity was identified among the unaccompanied children, this outbreak underscores the importance of providing routine influenza vaccinations to this population.

PCV13 is routinely given in the United States at age 2–59 months. It is recommended for the older unaccompanied children because of the unexpected number of pneumococcal

pneumonia cases occurring in the context of crowded conditions that likely facilitate spread of respiratory agents and because the risk for serious pneumococcal disease is increased with the circulation of influenza viruses.

Efforts by state and local public health departments were crucial in identifying disease clusters among the children, assisting in investigating the clusters, and supporting immunization activities, highlighting the critical role of state and local health departments working with federal agencies in detecting and responding to outbreaks. Additional information about the ongoing humanitarian and public health response is available at http://emergency.cdc.gov/children/unaccompanied/index.asp.

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Notes from the Field

Malnutrition and Elevated Mortality Among Refugees from South Sudan — Ethiopia, June–July 2014

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As a result of armed civil conflict in South Sudan that started in mid-December of 2013, an estimated 1.1 million persons were internally displaced, and approximately 400,000 refugees fled South Sudan to neighboring countries (primarily to Ethiopia, Uganda, Sudan, and Kenya). Refugees from South Sudan arriving in Ethiopia are sheltered in three refugee camps located in Gambella region: Leitchuor, Kule, and Tierkidi. The camps were established during January–May 2014 and have estimated refugee populations of 47,000, 51,000, and 50,000, respectively. Reports from health clinics and humanitarian agencies providing assistance to refugees suggested poor nutritional status of arriving refugees and elevated mortality rates. To assess the nutritional status of refugee children aged 6–59 months and mortality rates (crude [all ages] and aged <5 years), the Administration for Refugee and Returnee Affairs (an Ethiopian government aid agency), the United Nations High Commissioner for Refugees, World Food Programme, and United Nations Children's Fund, in collaboration with CDC, conducted cross-sectional population-representative surveys in Leitchuor, Kule, and Tierkidi camps during June–July 2014. Anthropometric measurements in children were taken using standard procedures (*1*), and nutritional status was classified based on 2006 World Health Organization (WHO) growth standards (*2*). Hemoglobin was measured using HemoCue Hb 301 (*3*). Anemia was diagnosed according to WHO thresholds (*4*). Retrospective mortality rates in Leitchuor and Kule were measured using a household census method.

Prevalence of global acute malnutrition among children aged 6–59 months ranged from 25.8% in Leitchuor to 30.3% in Kule, approximately twice the WHO emergency threshold of 15% (*5*). Prevalence of severe acute malnutrition also was very high, ranging from 5.7% in Leitchuor to 10.0% in Kule (Table). Crude (all ages) and aged <5 years mortality rates substantially exceeded emergency thresholds of 1 and 2 per 10,000 per day, respectively (*6*), in both Leitchuor and Kule (Table). Anemia prevalence among children aged 6–59 months in all camps exceeded 40%, indicating a problem of high public health significance according to WHO classification (*4*) (Table).

These survey results indicate a serious public health emergency among refugees from South Sudan residing in the three camps in Ethiopia. In response to the large influx of refugees into Ethiopia, the Administration for Refugee and Returnee Affairs, the United Nations High Commissioner for Refugees, and other humanitarian agencies established essential health services and nutrition treatment programs coupled with active screening for malnutrition. Blanket supplementary feeding programs targeting young children and pregnant and lactating women were established in all camps. Efforts directed at strengthening outreach activities to detect malnourished children, decentralizing health and nutrition services to improve access, and increasing awareness of the refugee population regarding available blanket feeding programs will be implemented with the goal to improve health and nutrition outcomes and decrease mortality. All registered refugees in the camps are receiving food aid assistance from the World Food Programme, and the planned decentralization of distributions as well as family-targeted distributions (as opposed to group distributions) will aim to improve the overall food security of vulnerable families.

Acknowledgments

Survey teams. Vincent Kahi, United Nations High Commissioner for Refugees.

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TABLE. Mortality rates and prevalence of global acute malnutrition and anemia in child refugees aged 6–59 months from South Sudan — three refugee camps, Ethiopia, June 2014

Nutrition standard	Leitchuor camp % (95% CI)	Kule camp % (95% CI)	Tierkidi camp % (95% CI)
Global acute malnutrition, children aged 6–59 mos*			
Total (WHZ <-2 or bilateral pitting edema)	25.8 (21.5–30.6)	30.3 (25.8–35.2)	28.0 (23.9–32.5)
Moderate (WHZ -3 to <-2)	20.1 (16.3–24.6)	20.3 (16.4–24.7)	20.2 (16.6–24.3)
Severe (WHZ<-3 or bilateral pitting edema)	5.7 (3.7–8.6)	10.0 (7.3–13.5)	7.8 (5.6–10.8)
Anemia, children aged 6–59 mos†			
Any anemia (Hb <11.0 g/dl)	42.7 (37.8–47.7)	51.9 (46.8–57.0)	46.2 (41.5–51.1)
Mild (Hb 10 to <11.0 g/dl)	22.4 (18.4–27.0)	28.0 (23.6–32.8)	26.6 (22.6–31.1)
Moderate (Hb 7 to <10.0 g/dl)	19.9 (16.1–24.4)	23.4 (19.3–28.0)	19.1 (15.3–23.2)
Severe (Hb <7.0 g/dl)	0.3 (0.0–1.6)	0.5 (0.1–2.0)	0.5 (0.1–1.7)
Mortality			
Crude mortality rate§,¶	1.54 (0.99–2.40)	1.63 (1.08–2.46)	—
Aged <5 yrs mortality rate**,††	4.07 (2.28–7.19)	5.64 (3.49–9.03)	—

Abbreviations: CI = confidence interval; WHZ = weight-for height z-score; Hb = hemoglobin.
* Sample sizes: Leitchuor, 353; Kule, 360; Tierkidi, 411.
† Sample sizes: Leitchuor 361, Kule, 368; Tierkidi, 413.
§ Deaths per 10,000 persons per day.
¶ Sample sizes: Leitchuor, 2,060; Kule, 2,078.
** Deaths per 10,000 children aged <5 years per day.
†† Sample sizes: Leitchuor, 460; Kule, 446.

Notice to Readers

Final 2013 Reports of Nationally Notifiable Infectious Diseases

Table 2 listed on pages 703–15 summarizes finalized data, as of June 30, 2014, from the National Notifiable Diseases Surveillance System (NNDSS) for 2013. These data will be published in more detail next year in the *Summary of Notifiable Diseases — United States, 2013* (*1*). Because no cases were reported in the United States during 2013, the following diseases do not appear in these early release tables: anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome–associated coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for human immunodeficiency virus (HIV) diagnoses do not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be published in the *Summary of Notifiable Diseases — United States, 2013*.

Policies for reporting NNDSS data to CDC can vary by disease or reporting jurisdiction depending on case status classification (i.e., confirmed, probable, or suspected). The publication criteria used for the 2013 finalized tables are listed in the "Print Criteria" column of the NNDSS event code list, available at http://wwwn.cdc.gov/nndss/document/nndss_event_code_list_2013_revised.pdf. In addition, only cases from reporting jurisdictions where the nationally notifiable disease is reportable are published. The NNDSS website is updated annually to include the latest national surveillance case definitions approved by the Council of State and Territorial Epidemiologists for classifying and enumerating cases of nationally notifiable infectious diseases.

Population estimates are from the National Center for Health Statistics postcensal estimates of the resident population of the United States for July 1, 2010–July 1, 2012, by year, county, single year of age (0 to ≥85 years), bridged-race (white, black or African American, American Indian or Alaska Native, Asian or Pacific Islander), Hispanic ethnicity (not Hispanic or Latino, Hispanic or Latino), and sex (vintage 2012), prepared under a collaborative arrangement with the U.S. Census Bureau. Population estimates for states are available at http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2012. Population estimates for territories are 2012 estimates from the U.S. Census Bureau (*2*).

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TABLE 2. Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Total resident population (in thousands)	Arboviruses†							
		California serogroup§		Eastern equine encephalitis	Powassan		St. Louis encephalitis	West Nile	
		Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive
United States	313,875	95	17	8	12	3	1	1,267	1,202
New England	14,564	3	—	2	3	—	—	11	5
Connecticut	3,592	—	—	1	—	—	—	1	3
Maine	1,329	—	—	—	1	—	—	—	—
Massachusetts	6,645	1	—	1	1	—	—	7	1
New Hampshire	1,322	1	—	—	1	—	—	1	—
Rhode Island	1,050	1	—	—	—	—	—	1	—
Vermont	626	—	—	—	—	—	—	1	1
Mid. Atlantic	41,208	3	1	—	5	1	—	34	21
New Jersey	8,868	—	—	—	1	—	—	10	2
New York (Upstate)	11,232	3	—	—	4	1	—	10	12
New York City	8,344	—	—	—	—	—	—	8	2
Pennsylvania	12,764	—	1	—	—	—	—	6	5
E.N. Central	46,567	29	10	—	3	2	—	167	54
Illinois	12,868	—	—	—	—	—	—	86	31
Indiana	6,538	1	—	—	—	—	—	19	4
Michigan	9,883	—	—	—	—	—	—	24	12
Ohio	11,553	14	2	—	—	—	—	21	3
Wisconsin	5,725	14	8	—	3	2	—	17	4
W.N. Central	20,755	5	1	—	1	—	—	288	455
Iowa	3,075	—	—	—	—	—	—	24	20
Kansas	2,885	—	—	—	—	—	—	34	57
Minnesota	5,380	5	1	—	1	—	—	31	48
Missouri	6,025	—	—	—	—	—	—	24	5
Nebraska	1,855	—	—	—	—	—	—	54	172
North Dakota	701	—	—	—	—	—	—	64	61
South Dakota	834	—	—	—	—	—	—	57	92
S. Atlantic	61,187	27	2	5	—	—	—	36	18
Delaware	917	—	—	—	—	—	—	3	—
District of Columbia	633	—	—	—	—	—	—	—	1
Florida	19,321	—	—	3	—	—	—	5	2
Georgia	9,916	1	1	1	—	—	—	4	6
Maryland	5,885	—	—	—	—	—	—	11	5
North Carolina	9,748	13	—	1	—	—	—	3	—
South Carolina	4,723	1	—	—	—	—	—	3	4
Virginia	8,187	2	—	—	—	—	—	6	—
West Virginia	1,857	10	1	—	—	—	—	1	—
E.S. Central	18,639	27	1	—	—	—	—	48	33
Alabama	4,818	2	—	—	—	—	—	3	6
Kentucky	4,380	—	—	—	—	—	—	1	2
Mississippi	2,986	2	1	—	—	—	—	27	18
Tennessee	6,455	23	—	—	—	—	—	17	7
W.S. Central	37,429	—	—	1	—	—	1	223	121
Arkansas	2,950	—	—	1	—	—	—	16	2
Louisiana	4,602	—	—	—	—	—	—	34	20
Oklahoma	3,816	—	—	—	—	—	—	60	29
Texas	26,061	—	—	—	—	—	1	113	70
Mountain	22,611	—	2	—	—	—	—	216	343
Arizona	6,551	—	—	—	—	—	—	50	12
Colorado	5,189	—	—	—	—	—	—	90	232
Idaho	1,596	—	1	—	—	—	—	14	26
Montana	1,005	—	—	—	—	—	—	10	28
Nevada	2,754	—	1	—	—	—	—	8	3
New Mexico	2,084	—	—	—	—	—	—	24	14
Utah	2,855	—	—	—	—	—	—	4	3
Wyoming	577	—	—	—	—	—	—	16	25
Pacific	50,915	1	—	—	—	—	—	244	152
Alaska	730	—	—	—	—	—	—	—	—
California	38,000	—	—	—	—	—	—	237	142
Hawaii	1,390	—	—	—	—	—	—	—	—
Oregon	3,900	1	—	—	—	—	—	7	9
Washington	6,895	—	—	—	—	—	—	—	1
Territories									
American Samoa	55	—	—	—	—	—	—	—	—
C.N.M.I.	51	—	—	—	—	—	—	—	—
Guam	160	—	—	—	—	—	—	—	—
Puerto Rico	3,673	—	—	—	—	—	—	—	—
U.S. Virgin Islands	105	—	—	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of the Northern Mariana Islands.

* No cases of anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated Coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2013. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for HIV diagnoses does not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be printed in the final publication.

† Totals reported to the Division of Vector-Borne Diseases (DVBD), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of June 1, 2014.

§ California serogroup viral diseases for 2013 include LaCrosse encephalitis, Jamestown Canyon and California serogroup not specified.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Babesiosis			Botulism				Brucellosis	Chancroid§
	Total	Confirmed	Probable	Total	Foodborne	Infant	Other†		
United States	1,792	1,480	312	152	4	136	12	99	10
New England	920	812	108	1	1	—	—	1	2
Connecticut	289	249	40	—	—	—	—	1	—
Maine	36	30	6	—	—	—	—	—	—
Massachusetts	425	396	29	1	1	—	—	—	2
New Hampshire	22	18	4	—	—	—	—	—	—
Rhode Island	142	117	25	—	—	—	—	—	—
Vermont	6	2	4	—	—	—	—	—	—
Mid. Atlantic	705	553	152	28	—	27	1	8	—
New Jersey	171	137	34	4	—	4	—	—	—
New York (Upstate)	459	348	111	1	—	1	—	4	—
New York City	75	68	7	3	—	3	—	—	—
Pennsylvania	N	N	N	20	—	19	1	4	—
E.N. Central	81	68	13	6	—	6	—	13	—
Illinois	N	N	N	1	—	1	—	5	—
Indiana	1	—	1	—	—	—	—	1	—
Michigan	2	2	—	—	—	—	—	—	—
Ohio	N	N	N	5	—	5	—	2	—
Wisconsin	78	66	12	—	—	—	—	5	—
W.N. Central	67	34	33	6	—	6	—	9	—
Iowa	N	N	N	3	—	3	N	2	—
Kansas	N	N	N	1	—	1	—	—	—
Minnesota	64	32	32	—	—	—	—	1	—
Missouri	N	N	N	1	—	1	—	2	—
Nebraska	1	—	1	1	—	1	—	3	—
North Dakota	1	1	—	—	—	—	—	—	—
South Dakota	1	1	—	—	—	—	—	1	—
S. Atlantic	12	7	5	15	—	15	—	18	—
Delaware	2	2	—	3	—	3	—	—	—
District of Columbia	N	N	N	—	—	—	—	—	—
Florida	N	N	N	—	—	—	—	9	—
Georgia	N	N	N	—	—	—	—	5	—
Maryland	9	4	5	8	—	8	—	—	—
North Carolina	N	N	N	—	—	—	—	—	—
South Carolina	1	1	—	—	—	—	—	1	—
Virginia	N	N	N	3	—	3	—	3	—
West Virginia	—	—	—	1	—	1	—	—	—
E.S. Central	—	—	—	5	—	5	—	3	1
Alabama	—	—	—	—	—	—	—	1	1
Kentucky	N	N	N	2	—	2	—	1	—
Mississippi	N	N	N	2	—	2	—	—	—
Tennessee	—	—	—	1	—	1	—	1	—
W.S. Central	3	2	1	14	—	12	2	22	1
Arkansas	N	N	N	1	—	1	—	3	—
Louisiana	2	1	1	3	—	3	—	3	—
Oklahoma	N	N	N	1	—	1	—	5	—
Texas	1	1	—	9	—	7	2	11	1
Mountain	—	—	—	12	—	12	—	2	—
Arizona	N	N	N	1	—	1	—	1	—
Colorado	N	N	N	4	—	4	—	1	—
Idaho	N	N	N	1	—	1	—	—	—
Montana	—	—	—	—	—	—	—	—	—
Nevada	N	N	N	1	—	1	—	—	—
New Mexico	N	N	N	3	—	3	—	—	—
Utah	—	—	—	2	—	2	—	—	—
Wyoming	—	—	—	—	—	—	—		—
Pacific	4	4	—	65	3	53	9	23	6
Alaska	N	N	N	1	1	—	—	—	—
California	3	3	—	56	1	46	9	20	6
Hawaii	N	N	N	—	—	—	—	—	—
Oregon	—	—	—	4	1	3	—	2	—
Washington	1	1	—	4	—	4	—	1	—
Territories									
American Samoa	U	U	U	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	—	—
Puerto Rico	N	N	N	—	—	—	—	—	—
U.S. Virgin Islands	N	N	N	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of the Northern Mariana Islands.

* No cases of anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated Coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2013. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for HIV diagnoses does not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be printed in the final publication.

† Includes cases reported as wound and unspecified botulism.

§ Totals reported to the Division of STD Prevention, NCHHSTP, as of June 4, 2014.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	*Chlamydia trachomatis* infection†	Cholera	Coccidioidomycosis	Cryptosporidiosis			Cyclosporiasis
				Total	Confirmed	Probable	
United States	1,401,906	14	9,438	9,056	5,698	3,358	784
New England	48,696	4	1	277	256	21	9
Connecticut	12,775	1	N	36	36	—	3
Maine	3,438	—	N	35	25	10	N
Massachusetts	23,210	3	—	123	123	—	5
New Hampshire	3,119	—	1	45	34	11	1
Rhode Island	4,312	—	—	12	12	—	—
Vermont	1,842	—	N	26	26	—	N
Mid. Atlantic	176,186	1	—	844	636	208	34
New Jersey	28,327	1	N	70	69	1	13
New York (Upstate)	37,922	—	N	252	243	9	6
New York City	57,881	—	N	81	81	—	15
Pennsylvania	52,056	—	N	441	243	198	N
E.N. Central	213,348	1	28	1,524	1,085	439	56
Illinois	63,797	1	N	266	143	123	23
Indiana	28,023	—	N	139	107	32	1
Michigan	44,835	—	16	270	234	36	2
Ohio	53,121	—	7	372	124	248	7
Wisconsin	23,572	—	5	477	477	—	23
W.N. Central	82,195	2	91	2,547	1,083	1,464	252
Iowa	10,953	1	N	1,505	498	1,007	148
Kansas	11,012	—	N	99	60	39	4
Minnesota	18,742	1	64	324	224	100	3
Missouri	27,328	—	17	210	97	113	5
Nebraska	7,301	—	1	151	103	48	91
North Dakota	2,932	—	9	84	63	21	N
South Dakota	3,927	—	N	174	38	136	1
S. Atlantic	282,067	5	8	1,181	716	465	57
Delaware	5,213	1	1	16	8	8	—
District of Columbia	6,414	—	1	15	14	1	N
Florida	80,182	4	N	409	201	208	47
Georgia	51,070	—	N	287	287	—	6
Maryland	26,723	—	6	65	45	20	—
North Carolina	48,416	—	N	126	49	77	—
South Carolina	25,594	—	N	98	65	33	—
Virginia	33,316	—	N	144	36	108	4
West Virginia	5,139	—	N	21	11	10	—
E.S. Central	94,432	—	—	352	220	132	1
Alabama	29,464	—	N	144	40	104	N
Kentucky	17,134	—	N	72	55	17	N
Mississippi	17,464	—	N	49	49	—	N
Tennessee	30,370	—	N	87	76	11	1
W.S. Central	192,325	—	4	923	765	158	371
Arkansas	15,447	—	N	57	48	9	17
Louisiana	28,739	—	4	378	376	2	3
Oklahoma	18,278	—	N	76	30	46	N
Texas	129,861	—	N	412	311	101	351
Mountain	93,766	—	6,029	734	559	175	2
Arizona	30,564	—	5,861	42	33	9	—
Colorado	20,386	—	N	99	71	28	1
Idaho	5,428	—	N	147	111	36	N
Montana	3,818	—	3	125	117	8	—
Nevada	11,781	—	90	20	13	7	N
New Mexico	12,249	—	30	49	49	—	—
Utah	7,535	—	42	86	82	4	—
Wyoming	2,005	—	3	166	83	83	1
Pacific	218,891	1	3,277	674	378	296	2
Alaska	5,774	—	—	6	6	—	—
California	167,346	—	3,272	306	283	23	2
Hawaii	6,640	—	N	1	1	—	—
Oregon	14,181	—	5	277	35	242	—
Washington	24,950	1	N	84	53	31	—
Territories							
American Samoa	—	—	N	N	N	N	N
C.N.M.I.	—	—	—	—	—	—	—
Guam	937	—	1	—	—	—	—
Puerto Rico	5,969	—	N	—	—	—	—
U.S. Virgin Islands	775	—	—	—	—	—	—

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* No cases of anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated Coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2013. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for HIV diagnoses does not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be printed in the final publication.

† Totals reported to the Division of STD Prevention, NCHHSTP, as of June 4, 2014.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Dengue Virus Infection†		Ehrlichiosis/Anaplasmosis			
	Dengue Fever	Dengue Hemorrhagic Fever	*Anaplasma phagocytophilum*	*Ehrlichia chaffeensis*	*Ehrlichia ewingii*	Undetermined
United States	837	6	2,782	1,518	31	220
New England	34	—	747	73	1	7
Connecticut	18	—	125	—	—	—
Maine	1	—	94	3	1	2
Massachusetts	—	—	330	8	—	—
New Hampshire	4	—	88	7	—	2
Rhode Island	9	—	69	49	—	—
Vermont	2	—	41	6	—	3
Mid. Atlantic	206	2	591	166	1	37
New Jersey	—	—	80	50	—	2
New York (Upstate)	51	1	454	92	—	18
New York City	131	1	23	14	1	—
Pennsylvania	24	—	34	10	—	17
E.N. Central	65	—	705	89	—	93
Illinois	26	—	9	44	—	—
Indiana	6	—	—	—	—	48
Michigan	16	—	4	1	—	1
Ohio	9	—	4	10	—	2
Wisconsin	8	—	688	34	—	42
W.N. Central	38	3	660	454	20	59
Iowa	—	2	N	N	N	N
Kansas	8	—	7	86	3	—
Minnesota	21	1	630	7	—	42
Missouri	5	—	13	354	17	14
Nebraska	—	—	2	6	—	—
North Dakota	1	—	8	—	—	3
South Dakota	3	—	—	1	—	—
S. Atlantic	216	1	48	288	6	7
Delaware	2	—	—	14	1	1
District of Columbia	—	—	N	N	N	N
Florida	151	—	2	21	—	—
Georgia	9	—	—	20	—	—
Maryland	11	—	5	31	1	1
North Carolina	13	—	15	78	—	—
South Carolina	7	—	—	7	—	—
Virginia	21	1	23	113	4	3
West Virginia	2	—	3	4	—	2
E.S. Central	16	—	9	166	2	6
Alabama	5	—	3	11	—	1
Kentucky	—	—	—	67	—	—
Mississippi	1	—	1	3	—	1
Tennessee	10	—	5	85	2	4
W.S. Central	107	—	18	280	1	—
Arkansas	2	—	7	164	1	—
Louisiana	6	—	1	2	—	—
Oklahoma	4	—	10	106	—	—
Texas	95	—	—	8	—	—
Mountain	12	—	1	2	—	2
Arizona	1	—	—	—	—	2
Colorado	—	—	N	N	N	N
Idaho	1	—	N	N	N	N
Montana	5	—	—	1	—	—
Nevada	4	—	1	—	—	—
New Mexico	—	—	N	N	N	N
Utah	—	—	—	1	—	—
Wyoming	1	—	—	—	—	—
Pacific	143	—	3	—	—	9
Alaska	1	—	N	N	N	N
California	119	—	—	—	—	9
Hawaii	10	—	N	N	N	N
Oregon	—	—	1	—	—	—
Washington	13	—	2	—	—	—
Territories						
American Samoa	—	—	N	N	N	N
C.N.M.I.	—	—	—	—	—	—
Guam	—	—	N	N	N	N
Puerto Rico	9,557	153	N	N	N	N
U.S. Virgin Islands	169	5	—	—	—	—

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* No cases of anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated Coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2013. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for HIV diagnoses does not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be printed in the final publication.

† Total number of reported laboratory-positive dengue cases including all confirmed cases [by anti-dengue virus (DENV) molecular diagnostic methods or sero-conversion of anti-DENV IgM] and all probable cases (by a single, positive anti-DENV IgM). Totals reported to the Division of Vector-Borne Diseases (DVBD), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of July 1, 2014.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Giardiasis	Gonorrhea†	*Haemophilus influenzae*, invasive disease				Hansen's disease (leprosy)
			All ages, serotypes	Age <5 years			
				Serotype b	Nonserotype b	Unknown serotype	
United States	15,106	333,004	3,792	31	222	185	81
New England	1,443	6,883	362	2	7	1	1
Connecticut	230	2,860	55	—	1	—	—
Maine	218	245	25	2	1	—	N
Massachusetts	664	3,106	232	—	2	—	1
New Hampshire	117	121	25	—	1	1	—
Rhode Island	41	454	13	—	—	—	—
Vermont	173	97	12	—	2	—	N
Mid. Atlantic	2,865	40,807	609	8	22	27	13
New Jersey	336	7,014	114	—	—	12	2
New York (Upstate)	1,010	6,460	183	2	13	1	N
New York City	764	13,459	105	—	—	12	10
Pennsylvania	755	13,874	207	6	9	2	1
E.N. Central	1,953	55,395	640	3	51	13	1
Illinois	311	16,464	162	1	6	1	—
Indiana	203	7,144	141	1	12	1	1
Michigan	547	10,569	102	—	9	4	—
Ohio	507	16,619	149	1	24	2	—
Wisconsin	385	4,599	86	—	—	5	—
W.N. Central	1,561	17,713	271	2	5	30	3
Iowa	273	1,472	1	—	—	1	1
Kansas	102	2,161	40	—	5	—	—
Minnesota	618	3,873	90	—	—	12	1
Missouri	244	7,546	95	—	—	9	—
Nebraska	169	1,385	29		—	8	1
North Dakota	44	492	13	2	—	—	N
South Dakota	111	784	3	—	—	—	—
S. Atlantic	2,543	73,802	945	—	25	60	19
Delaware	20	1,390	9	—	—	1	—
District of Columbia	79	2,478	12	—	—	1	—
Florida	1,114	20,818	273	—	—	22	10
Georgia	641	14,252	162	—	5	14	6
Maryland	228	5,989	102	—	8	—	2
North Carolina	N	13,666	144	—	—	19	1
South Carolina	133	7,194	106	—	8	3	—
Virginia	278	6,952	98	—	3	—	—
West Virginia	50	1,063	39	—	1	—	N
E.S. Central	174	25,164	259	2	15	9	5
Alabama	174	8,377	74	1	7	2	1
Kentucky	N	4,315	47	1	—	1	1
Mississippi	N	5,096	29	—	2	5	3
Tennessee	N	7,376	109	—	6	1	—
W.S. Central	374	51,814	195	1	16	5	16
Arkansas	119	4,007	25	—	3	—	—
Louisiana	255	8,669	52	—	—	5	—
Oklahoma	N	5,303	113	—	13	—	N
Texas	N	33,835	5	1	N	N	16
Mountain	1,148	15,316	328	8	55	5	3
Arizona	115	6,412	112	3	22	2	—
Colorado	355	2,820	81	—	9	—	3
Idaho	137	211	19	1	3	3	—
Montana	91	224	6	—	4	—	—
Nevada	91	2,714	14	—	—	—	—
New Mexico	99	1,918	48	1	7	—	—
Utah	228	951	42	3	10	—	—
Wyoming	32	66	6	—	—	—	—
Pacific	3,045	46,110	183	5	26	35	20
Alaska	82	1,128	21	2	7	—	1
California	1,991	38,166	39	—	—	31	5
Hawaii	60	718	28	—	—	4	14
Oregon	364	1,729	84	1	10	—	N
Washington	548	4,369	11	2	9	—	N
Territories							
American Samoa	—	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—
Guam	2	92	—	—	—	—	17
Puerto Rico	48	356	1	—	—	1	1
U.S. Virgin Islands	—	58	N	N	N	N	—

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TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Hantavirus pulmonary syndrome	Hemolytic uremic syndrome, post-diarrheal	Hepatitis, viral, acute			Hepatitis B perinatal infection
			A	B	C	
United States	21	329	1,781	3,050	2,138	48
New England	—	18	92	94	185	—
Connecticut	N	5	19	8	—	—
Maine	—	2	10	11	8	—
Massachusetts	—	5	43	71	174	—
New Hampshire	—	4	9	2	N	—
Rhode Island	—	—	4	U	U	—
Vermont	—	2	7	2	3	—
Mid. Atlantic	—	20	288	225	318	7
New Jersey	—	4	68	65	106	1
New York (Upstate)	—	11	75	49	115	—
New York City	—	4	92	68	16	—
Pennsylvania	—	1	53	43	81	6
E.N. Central	—	39	290	482	442	8
Illinois	—	5	79	94	37	—
Indiana	—	9	32	101	175	2
Michigan	—	7	83	53	74	1
Ohio	—	9	59	225	116	5
Wisconsin	—	9	37	9	40	—
W.N. Central	—	45	94	116	77	2
Iowa	—	6	17	11	—	—
Kansas	—	4	11	11	17	1
Minnesota	—	17	32	19	47	1
Missouri	—	13	8	61	6	—
Nebraska	—	3	13	9	2	—
North Dakota	—	2	9	—	4	—
South Dakota	—	—	4	5	1	—
S. Atlantic	—	40	284	884	413	5
Delaware	—	—	4	14	U	—
District of Columbia	—	—	—	—	—	—
Florida	—	14	115	323	134	2
Georgia	—	11	36	104	48	—
Maryland	—	2	29	43	53	—
North Carolina	—	7	46	75	79	1
South Carolina	—	—	14	58	—	—
Virginia	—	6	36	72	41	2
West Virginia	—	—	4	195	58	—
E.S. Central	—	21	59	621	354	1
Alabama	N	2	10	90	30	—
Kentucky	—	N	24	214	226	—
Mississippi	N	—	5	55	U	N
Tennessee	—	19	20	262	98	1
W.S. Central	4	31	146	314	117	2
Arkansas	—	3	9	50	30	—
Louisiana	1	—	14	82	19	—
Oklahoma	2	8	14	40	40	—
Texas	1	20	109	142	28	2
Mountain	13	33	182	106	83	2
Arizona	5	9	66	28	U	1
Colorado	2	12	51	24	21	1
Idaho	1	4	8	13	14	—
Montana	2	—	6	4	16	—
Nevada	—	1	19	29	9	—
New Mexico	3	3	20	3	12	—
Utah	—	3	12	5	11	—
Wyoming	—	1	—	—	—	—
Pacific	4	82	346	208	149	21
Alaska	N	N	1	1	—	—
California	3	57	255	138	72	19
Hawaii	—	4	16	4	—	—
Oregon	1	21	29	32	14	—
Washington	—	—	45	33	63	2
Territories						
American Samoa	N	N	—	—	—	—
C.N.M.I.	—	—	—	—	—	—
Guam	N	—	31	75	71	—
Puerto Rico	—	N	10	36	N	—
U.S. Virgin Islands	—	N	—	—	—	—

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TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Influenza-associated pediatric mortality†	Invasive Pneumococcal disease§		Legionellosis	Listeriosis	Lyme disease			Malaria
		All Ages	Age <5 years			Total	Confirmed	Probable	
United States	160	17,193	1,171	4,954	735	36,307	27,203	9,104	1,594
New England	8	1,220	47	363	61	12,892	9,496	3,396	130
Connecticut	—	315	16	63	22	2,925	2,111	814	20
Maine	—	121	6	23	4	1,373	1,127	246	10
Massachusetts	5	550	20	189	25	5,290	3,816	1,474	71
New Hampshire	3	101	5	27	5	1,687	1,324	363	10
Rhode Island	—	76	—	46	4	724	444	280	14
Vermont	—	57	—	15	1	893	674	219	5
Mid. Atlantic	19	2,293	128	1,431	179	14,139	11,278	2,861	418
New Jersey	5	598	39	241	29	3,766	2,785	981	93
New York (Upstate)	9	1,022	51	456	63	3,872	3,018	854	58
New York City	4	673	38	300	32	743	494	249	196
Pennsylvania	1	N	N	434	55	5,758	4,981	777	71
E.N. Central	24	3,054	187	1,311	102	2,580	2,073	507	149
Illinois	4	N	41	299	38	337	337	—	64
Indiana	4	726	36	91	11	110	101	9	20
Michigan	5	743	43	272	14	168	114	54	21
Ohio	8	1,161	43	491	24	93	74	19	33
Wisconsin	3	424	24	158	15	1,872	1,447	425	11
W.N. Central	12	1,043	99	183	21	2,667	1,625	1,042	109
Iowa	1	N	N	11	2	247	153	94	12
Kansas	3	149	N	17	3	34	18	16	8
Minnesota	4	536	43	49	12	2,340	1,431	909	67
Missouri	—	N	32	77	2	3	1	2	6
Nebraska	1	156	14	19	2	10	7	3	6
North Dakota	—	103	10	3	—	29	12	17	3
South Dakota	3	99	N	7	—	4	3	1	7
S. Atlantic	25	3,601	288	770	145	3,559	2,442	1,117	403
Delaware	1	29	1	16	1	509	400	109	9
District of Columbia	1	85	2	14	5	35	33	2	13
Florida	8	1,089	95	250	41	138	87	51	54
Georgia	4	1,138	91	66	14	8	8	—	67
Maryland	5	492	27	162	20	1,197	801	396	147
North Carolina	—	N	N	90	23	180	39	141	27
South Carolina	4	439	19	22	11	42	33	9	9
Virginia	2	N	37	123	29	1,307	925	382	75
West Virginia	—	329	16	27	1	143	116	27	2
E.S. Central	6	1,459	95	193	33	89	39	50	33
Alabama	1	182	18	41	5	24	11	13	2
Kentucky	2	255	13	50	11	40	17	23	9
Mississippi	1	233	18	19	4	—	—	—	3
Tennessee	2	789	46	83	13	25	11	14	19
W.S. Central	27	2,325	189	240	38	85	49	36	115
Arkansas	5	252	11	24	4	—	—	—	2
Louisiana	2	358	25	29	3	—	—	—	9
Oklahoma	2	N	21	19	3	3	1	2	14
Texas	18	1,715	132	168	28	82	48	34	90
Mountain	21	2,012	116	190	24	109	74	35	86
Arizona	4	786	44	69	3	32	22	10	33
Colorado	5	504	26	48	11	—	—	—	32
Idaho	—	N	4	12	—	19	14	5	5
Montana	—	31	1	9	—	18	16	2	—
Nevada	3	139	5	19	4	16	11	5	8
New Mexico	4	328	12	11	3	6	—	6	1
Utah	5	202	23	22	3	15	10	5	7
Wyoming	—	22	1	—	—	3	1	2	—
Pacific	18	186	22	273	132	187	127	60	151
Alaska	—	105	15	1	—	14	14	—	4
California	16	N	N	203	101	112	90	22	103
Hawaii	2	81	7	7	3	N	N	N	1
Oregon	—	N	N	20	7	43	12	31	13
Washington	—	N	N	42	21	18	11	7	30
Territories									
American Samoa	—	N	—	N	N	N	N	N	—
C.N.M.I.	—	—	—	—	—	—	—	—	—
Guam	—	18	—	—	—	—	—	—	—
Puerto Rico	1	—	—	13	—	N	N	N	—
U.S. Virgin Islands	—	—	—	—	—	N	N	N	—

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† Totals reported to the Influenza Division, National Center for Immunization and Respiratory Diseases (NCIRD), as of December 28, 2013.

§ *Streptococcus pneumoniae*, invasive disease. Since January 1, 2010, "Invasive pneumococcal disease (IPD)" has been nationally notifiable and separate notifications for "Drug resistant *S. pneumoniae*" and "IPD in children <5 years of age" have been discontinued.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Measles			Meningococcal disease				
	Total	Indigenous	Imported	All Serogroups	Serogroups ACWY	Serogroup B	Serogroup Other	Serogroup Unknown
United States	187	135	52	556	142	99	17	298
New England	2	—	2	25	14	8	2	1
Connecticut	—	—	—	3	1	—	1	1
Maine	—	—	—	4	2	1	1	—
Massachusetts	1	—	1	11	7	4	—	—
New Hampshire	—	—	—	2	1	1	—	—
Rhode Island	1	—	1	1	1	—	—	—
Vermont	—	—	—	4	2	2	—	—
Mid. Atlantic	80	70	10	82	18	14	2	48
New Jersey	15	12	3	20	—	—	—	20
New York (Upstate)	3	—	3	24	10	9	1	4
New York City	62	58	4	16	—	—	—	16
Pennsylvania	—	—	—	22	8	5	1	8
E.N. Central	12	3	9	52	21	24	3	4
Illinois	5	—	5	10	6	3	1	—
Indiana	2	1	1	15	6	9	—	—
Michigan	5	2	3	4	2	1	—	1
Ohio	—	—	—	10	5	3	1	1
Wisconsin	—	—	—	13	2	8	1	2
W.N. Central	5	—	5	38	6	6	1	25
Iowa	—	—	—	1	1	—	—	—
Kansas	—	—	—	3	2	—	—	1
Minnesota	2	—	2	12	—	—	—	12
Missouri	3	—	3	10	—	—	—	10
Nebraska	—	—	—	5	—	3	—	2
North Dakota	—	—	—	3	—	2	1	—
South Dakota	—	—	—	4	3	1	—	—
S. Atlantic	31	27	4	98	17	9	3	69
Delaware	—	—	—	2	—	2	—	—
District of Columbia	1	1	—	—	—	—	—	—
Florida	7	5	2	58	—	—	—	58
Georgia	—	—	—	12	4	1	1	6
Maryland	1	—	1	3	1	1	—	1
North Carolina	22	21	1	10	6	3	—	1
South Carolina	—	—	—	4	3	—	1	—
Virginia	—	—	—	7	2	2	—	3
West Virginia	—	—	—	2	1	—	1	—
E.S. Central	—	—	—	16	6	4	1	5
Alabama	—	—	—	5	2	2	1	—
Kentucky	—	—	—	1	1	—	—	—
Mississippi	—	—	—	4	—	—	—	4
Tennessee	—	—	—	6	3	2	—	1
W.S. Central	27	23	4	59	23	13	—	23
Arkansas	—	—	—	7	2	4	—	1
Louisiana	—	—	—	16	—	—	—	16
Oklahoma	—	—	—	6	4	2	—	—
Texas	27	23	4	30	17	7	—	6
Mountain	3	1	2	40	23	9	2	6
Arizona	1	—	1	12	9	3	—	—
Colorado	2	1	1	9	5	2	—	2
Idaho	—	—	—	4	1	1	—	2
Montana	—	—	—	1	1	—	—	—
Nevada	—	—	—	1	—	—	—	1
New Mexico	—	—	—	2	1	—	1	—
Utah	—	—	—	9	5	2	1	1
Wyoming	—	—	—	2	1	1	—	—
Pacific	27	11	16	146	14	12	3	117
Alaska	—	—	—	—	—	—	—	—
California	17	7	10	113	—	—	—	113
Hawaii	—	—	—	1	—	—	1	—
Oregon	6	3	3	12	7	3	1	1
Washington	4	1	3	20	7	9	1	3
Territories								
American Samoa	—	—	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	—	—	—	1	—	—	—	1
Puerto Rico	—	—	—	1	—	1	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—

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TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Mumps	Novel influenza A virus infections†	Pertussis	Plague	Poliomyelitis, paralytic	Psittacosis	Q fever		
							Total	Acute	Chronic
United States	584	21	28,639	4	1	6	170	137	33
New England	79	—	1,147	—	—	—	2	1	1
Connecticut	4	—	61	—	—	N	—	—	—
Maine	1	—	332	—	—	—	—	—	—
Massachusetts	69	—	349	—	—	—	—	—	—
New Hampshire	1	—	131	—	—	—	N	N	N
Rhode Island	3	—	160	—	—	—	2	1	1
Vermont	1	—	114	—	—	—	N	N	N
Mid. Atlantic	146	—	1,903	—	—	—	7	5	2
New Jersey	80	—	406	—	—	—	2	2	—
New York (Upstate)	10	—	722	—	—	—	1	—	1
New York City	35	—	142	—	—	—	—	—	—
Pennsylvania	21	—	633	—	—	—	4	3	1
E.N. Central	50	18	5,111	—	—	—	25	19	6
Illinois	26	1	785	—	—	—	6	3	3
Indiana	4	14	616	—	—	—	1	1	—
Michigan	6	2	988	—	—	—	1	1	—
Ohio	12	1	1,464	—	—	—	8	6	2
Wisconsin	2	—	1,258	—	—	—	9	8	1
W.N. Central	15	1	2,523	—	—	1	42	35	7
Iowa	3	1	308	—	—	—	N	N	N
Kansas	—	—	405	—	—	—	3	3	—
Minnesota	3	—	865	—	—	—	2	2	—
Missouri	8	—	559	—	—	—	24	22	2
Nebraska	—	—	232	—	—	1	8	3	5
North Dakota	1	—	87	—	—	—	1	1	—
South Dakota	—	—	67	—	—	—	4	4	—
S. Atlantic	214	—	2,599	—	—	1	15	13	2
Delaware	—	—	57	—	—	—	—	—	—
District of Columbia	1	—	42	—	—	—	N	N	N
Florida	1	—	732	—	—	—	2	2	—
Georgia	10	—	317	—	—	—	2	2	—
Maryland	87	—	213	—	—	—	2	1	1
North Carolina	4	—	583	—	—	—	5	5	—
South Carolina	2	—	218	—	—	1	1	1	—
Virginia	109	—	418	—	—	—	3	2	1
West Virginia	—	—	19	—	—	—	—	—	—
E.S. Central	13	—	889	—	—	—	7	6	1
Alabama	4	—	200	—	—	—	2	2	—
Kentucky	2	—	383	—	—	—	1	—	1
Mississippi	—	—	59	—	—	—	—	—	—
Tennessee	7	—	247	—	—	—	4	4	—
W.S. Central	19	2	4,920	—	1	—	26	25	1
Arkansas	3	2	466	—	—	—	3	3	—
Louisiana	2	—	214	—	—	—	—	—	—
Oklahoma	1	—	255	—	—	—	3	3	—
Texas	13	—	3,985	—	1	N	20	19	1
Mountain	13	—	5,935	4	—	1	25	13	12
Arizona	1	—	1,440	—	—	1	8	4	4
Colorado	4	—	1,418	—	—	—	8	4	4
Idaho	—	—	237	—	—	—	2	1	1
Montana	—	—	663	—	—	—	2	1	1
Nevada	5	—	181	—	—	—	—	—	—
New Mexico	1	—	613	4	—	—	2	2	—
Utah	2	—	1,308	—	—	—	3	1	2
Wyoming	—	—	75	—	—	—	—	—	—
Pacific	35	—	3,612	—	—	3	21	20	1
Alaska	—	—	317	—	—	—	—	—	—
California	30	—	2,011	—	—	1	16	16	—
Hawaii	—	—	50	—	—	—	—	—	—
Oregon	3	—	486	—	—	2	3	3	—
Washington	2	—	748	—	—	—	2	1	1
Territories									
American Samoa	—	—	—	—	—	N	N	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—
Guam	8	—	—	—	—	—	N	N	N
Puerto Rico	3	—	34	—	—	N	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—	—

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TABLE 2. (Continued) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Rabies		Rubella	Rubella, Congenital syndrome	Salmonellosis	Shiga toxin-producing *Escherichia Coli* (STEC)†
	Animal	Human				
United States	4,248	2	9	1	50,634	6,663
New England	307	—	—	—	2,116	256
Connecticut	148	—	—	—	426	71
Maine	50	—	—	—	131	27
Massachusetts	—	—	—	—	1,143	108
New Hampshire	30	—	—	—	213	27
Rhode Island	28	—	—	—	128	3
Vermont	51	—	—	—	75	20
Mid. Atlantic	742	—	1	1	5,112	725
New Jersey	—	—	—	—	1,062	137
New York (Upstate)	335	—	—	1	1,298	221
New York City	56	—	1	—	1,131	88
Pennsylvania	351	—	—	—	1,621	279
E.N. Central	166	—	1	—	5,561	1,031
Illinois	54	—	—	—	1,783	279
Indiana	10	—	—	—	705	121
Michigan	41	—	—	—	997	184
Ohio	61	—	1	—	1,181	222
Wisconsin	N	—	—	—	895	225
W.N. Central	223	—	—	—	3,235	1,009
Iowa	—	—	—	—	575	171
Kansas	60	—	—	—	423	89
Minnesota	62	—	—	—	799	305
Missouri	39	—	—	—	847	276
Nebraska	34	—	—	—	307	82
North Dakota	—	—	—	—	102	43
South Dakota	28	—	—	—	182	43
S. Atlantic	1,238	2	—	—	13,710	549
Delaware	—	—	—	—	121	15
District of Columbia	U	—	—	—	52	5
Florida	103	—	—	—	6,133	121
Georgia	302	—	—	—	2,281	121
Maryland	376	1	—	—	862	64
North Carolina	379	1	—	—	1,877	71
South Carolina	—	—	—	—	1,139	8
Virginia	—	—	—	—	1,051	109
West Virginia	78	—	—	—	194	35
E.S. Central	59	—	—	—	3,397	327
Alabama	39	—	—	—	1,086	53
Kentucky	15	—	—	—	526	110
Mississippi	5	—	—	—	917	30
Tennessee	—	—	—	—	868	134
W.S. Central	1,180	—	1	—	7,845	813
Arkansas	152	—	—	—	706	76
Louisiana	7	—	—	—	1,282	24
Oklahoma	84	—	1	—	911	107
Texas	937	—	—	—	4,946	606
Mountain	108	—	3	—	3,133	791
Arizona	N	—	—	—	1,010	246
Colorado	—	—	—	—	631	186
Idaho	27	—	2	—	134	106
Montana	36	—	—	—	93	49
Nevada	13	—	—	—	522	59
New Mexico	11	—	1	—	350	30
Utah	12	—	—	—	322	84
Wyoming	9	—	—	—	71	31
Pacific	225	—	3	—	6,525	1,162
Alaska	7	—	—	—	87	N
California	196	—	—	—	5,043	623
Hawaii	—	—	1	—	349	28
Oregon	10	—	1	—	375	189
Washington	12	—	1	—	671	322
Territories						
American Samoa	U	U	—	—	—	—
C.N.M.I.	—	—	—	—	—	—
Guam	—	—	—	—	18	82
Puerto Rico	54	—	—	N	586	7
U.S. Virgin Islands	—	—	—	—	—	—

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† Includes *E. coli* O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin positive, not serogrouped.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Shigellosis	Spotted Fever Rickettsiosis†			Streptococcal toxic-shock syndrome	Syphilis§		
		Total	Confirmed	Probable		All Stages¶	Primary & Secondary	Congenital
United States	12,729	3,359	174	3,181	224	56,471	17,375	348
New England	515	9	1	8	39	1,327	502	4
Connecticut	57	—	—	—	18	133	56	—
Maine	5	2	—	2	16	21	10	—
Massachusetts	174	1	—	1	1	990	360	4
New Hampshire	8	4	1	3	—	79	28	—
Rhode Island	268	2	—	2	2	94	45	—
Vermont	3	—	—	—	2	10	3	—
Mid. Atlantic	871	86	4	82	37	8,626	2,163	13
New Jersey	137	42	2	40	27	968	233	—
New York (Upstate)	273	25	1	24	9	1,052	298	5
New York City	315	3	1	2	—	5,121	1,161	6
Pennsylvania	146	16	—	16	1	1,485	471	2
E.N. Central	1,348	171	7	164	90	5,624	2,031	49
Illinois	312	102	3	99	59	2,661	798	23
Indiana	117	32	2	30	13	543	215	—
Michigan	169	3	—	3	9	1,068	487	9
Ohio	714	23	1	22	9	1,095	436	17
Wisconsin	36	11	1	10	—	257	95	—
W.N. Central	870	292	11	281	1	1,753	698	3
Iowa	342	8	—	8	—	226	106	—
Kansas	40	—	—	—	—	196	51	—
Minnesota	132	15	1	14	—	541	193	—
Missouri	89	245	4	241	1	609	251	3
Nebraska	63	15	5	10	—	95	41	—
North Dakota	18	2	—	2	—	25	12	—
South Dakota	186	7	1	6	—	61	44	—
S. Atlantic	2,483	972	107	865	23	13,072	4,211	78
Delaware	14	11	—	11	—	146	52	1
District of Columbia	15	6	5	1	—	609	168	2
Florida	1,018	24	4	20	N	5,024	1,513	37
Georgia	886	81	81	—	—	2,990	1,017	20
Maryland	107	8	—	8	1	1,361	456	14
North Carolina	201	426	11	415	9	1,150	404	1
South Carolina	120	60	1	59	4	753	271	1
Virginia	115	350	4	346	8	1,000	315	2
West Virginia	7	6	1	5	1	39	15	—
E.S. Central	1,264	915	16	897	10	2,347	597	8
Alabama	313	255	1	254	—	679	183	2
Kentucky	63	72	2	68	10	395	122	4
Mississippi	222	39	1	38	N	293	78	—
Tennessee	666	549	12	537	—	980	214	2
W.S. Central	3,320	809	15	794	4	9,953	2,193	119
Arkansas	273	480	4	476	1	527	177	12
Louisiana	451	5	—	5	3	1,998	423	32
Oklahoma	210	241	10	231	N	383	118	—
Texas	2,386	83	1	82	N	7,045	1,475	75
Mountain	770	86	11	73	20	2,438	828	17
Arizona	428	63	9	54	—	962	287	13
Colorado	113	6	—	6	—	475	163	—
Idaho	11	1	1	—	—	42	15	—
Montana	69	2	—	2	—	8	5	—
Nevada	54	1	—	1	9	523	205	2
New Mexico	60	4	1	3	—	247	78	2
Utah	25	7	—	5	11	172	74	—
Wyoming	10	2	—	2	—	9	1	—
Pacific	1,288	19	2	17	—	11,331	4,152	57
Alaska	1	N	—	—	—	35	23	1
California	1,068	15	1	14	N	9,971	3,532	56
Hawaii	42	N	N	N	—	87	46	—
Oregon	55	2	1	1	N	527	267	—
Washington	122	2	—	2	N	711	284	—
Territories								
American Samoa	—	N	N	N	N	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	7	N	N	N	—	24	6	1
Puerto Rico	4	N	N	N	N	810	385	1
U.S. Virgin Islands	—	N	N	N	—	9	2	—

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* No cases of anthrax; diphtheria; eastern equine encephalitis, nonneuroinvasive disease; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated Coronavirus disease (SARS-CoV); smallpox; St. Louis encephalitis, nonneuroinvasive disease; western equine encephalitis, neuroinvasive and nonneuroinvasive disease; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2013. Data on chronic hepatitis B and hepatitis C virus infection (past or present) are not included because they are undergoing data quality review. Data for HIV diagnoses does not appear because CDC is transitioning to a new system for processing national HIV surveillance data, and will be printed in the final publication.

† Total case count includes four unknown case status reports.

§ Totals reported to the Division of STD Prevention, NCHHSTP, as of June 4, 2014.

¶ Includes the following categories: primary, secondary, latent (including early latent, late latent, and latent syphilis of unknown duration), neurosyphilis, late (including late syphilis with clinical manifestations other than neurosyphilis), and congenital syphilis.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Tetanus	Toxic-shock syndrome	Trichinellosis	Tuberculosis†	Tularemia
United States	26	71	22	9,582	203
New England	1	—	—	325	8
Connecticut	—	N	—	62	—
Maine	1	—	—	15	—
Massachusetts	—	—	—	201	8
New Hampshire	—	—	—	15	—
Rhode Island	—	—	—	27	—
Vermont	—	—	—	5	—
Mid. Atlantic	1	14	2	1,405	2
New Jersey	—	3	—	319	2
New York (Upstate)	1	6	2	216	—
New York City	—	3	—	656	—
Pennsylvania	—	2	—	214	—
E.N. Central	2	21	9	760	12
Illinois	—	5	9	327	4
Indiana	1	—	—	94	5
Michigan	1	10	—	141	—
Ohio	—	3	—	148	2
Wisconsin	—	3	—	50	1
W.N. Central	2	8	1	380	92
Iowa	1	1	—	47	4
Kansas	—	—	—	36	28
Minnesota	1	6	—	151	—
Missouri	—	1	—	104	36
Nebraska	—	—	1	21	17
North Dakota	—	—	—	12	—
South Dakota	—	—	—	9	7
S. Atlantic	7	12	6	1,746	7
Delaware	—	—	—	19	—
District of Columbia	—	—	—	38	—
Florida	5	N	—	652	1
Georgia	—	10	N	340	—
Maryland	—	N	3	176	2
North Carolina	—	1	1	216	2
South Carolina	—	1	—	112	—
Virginia	2	N	2	180	2
West Virginia	—	—	—	13	—
E.S. Central	2	5	—	374	7
Alabama	—	1	—	108	—
Kentucky	1	1	N	59	3
Mississippi	—	N	—	65	—
Tennessee	1	3	—	142	4
W.S. Central	3	2	—	1,502	49
Arkansas	1	2	N	72	38
Louisiana	—	—	—	139	—
Oklahoma	—	N	—	69	10
Texas	2	N	—	1,222	1
Mountain	3	3	—	450	15
Arizona	—	1	—	184	—
Colorado	—	1	—	74	1
Idaho	1	—	—	11	3
Montana	—	—	—	6	5
Nevada	—	—	—	92	—
New Mexico	1	—	—	50	4
Utah	1	1	—	33	2
Wyoming	—	—	—	—	—
Pacific	5	6	4	2,640	11
Alaska	—	N	2	71	1
California	4	6	2	2,171	2
Hawaii	—	N	—	115	—
Oregon	1	N	—	73	3
Washington	—	N	—	210	5
Territories					
American Samoa	—	N	N	2	—
C.N.M.I.	—	—	—	16	—
Guam	—	—	—	48	—
Puerto Rico	1	N	N	50	—
U.S. Virgin Islands	—	—	—	2	—

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† Totals reported to the Division of Tuberculosis Elimination, NCHHSTP, as of July 1, 2014.

TABLE 2. (*Continued*) Reported cases of notifiable diseases,* by geographic division and area — United States, 2013

Area	Typhoid fever	Vancomycin-intermediate *Staphylococcus aureus* (*VISA*)	Varicella		Vibriosis
			Morbidity	Mortality†	
United States	338	249	11,359	3	1,299
New England	27	—	1,116	—	179
Connecticut	5	—	223	—	41
Maine	—	—	140	—	9
Massachusetts	18	—	510	N	101
New Hampshire	3	N	104	—	4
Rhode Island	1	—	39	—	19
Vermont	—	—	100	—	5
Mid. Atlantic	79	54	1,204	1	162
New Jersey	30	8	419	—	56
New York (Upstate)	16	35	N	1	73
New York City	23	6	N	—	27
Pennsylvania	10	5	785	—	6
E.N. Central	29	37	2,834	—	50
Illinois	12	7	731	—	15
Indiana	4	—	321	—	8
Michigan	4	15	722	—	10
Ohio	5	12	661	N	11
Wisconsin	4	3	399	—	6
W.N. Central	14	133	1,237	1	31
Iowa	1	N	N	N	N
Kansas	2	1	434	—	1
Minnesota	7	—	478	—	19
Missouri	1	131	230	1	5
Nebraska	—	—	16	—	3
North Dakota	—	—	36	—	3
South Dakota	3	1	43	N	N
S. Atlantic	51	15	1,404	1	365
Delaware	1	—	23	—	7
District of Columbia	—	1	10	—	1
Florida	11	5	659	1	191
Georgia	11	—	54	—	25
Maryland	13	4	N	—	57
North Carolina	5	2	N	N	26
South Carolina	—	—	168	—	14
Virginia	10	3	374	N	42
West Virginia	—	—	116	—	2
E.S. Central	10	—	165	—	41
Alabama	4	—	160	—	18
Kentucky	3	N	N	N	—
Mississippi	—	—	5	N	11
Tennessee	3	—	N	—	12
W.S. Central	14	10	2,185	—	130
Arkansas	—	—	249	—	N
Louisiana	—	1	62	—	39
Oklahoma	1	1	N	N	7
Texas	13	8	1,874	N	84
Mountain	22	—	1,093	—	42
Arizona	12	—	354	—	19
Colorado	2	N	353	N	10
Idaho	2	N	N	N	N
Montana	1	—	84	—	3
Nevada	1	—	N	N	5
New Mexico	1	N	66	—	3
Utah	3	—	227	—	2
Wyoming	—	—	9	N	—
Pacific	92	—	121	—	299
Alaska	5	N	61	—	2
California	69	N	30	—	150
Hawaii	4	—	30	—	30
Oregon	3	N	N	N	27
Washington	11	N	N	—	90
Territories					
American Samoa	—	N	N	N	N
C.N.M.I.	—	—	—	—	—
Guam	—	—	57	N	1
Puerto Rico	—	2	305	—	—
U.S. Virgin Islands	—	—	—	—	—

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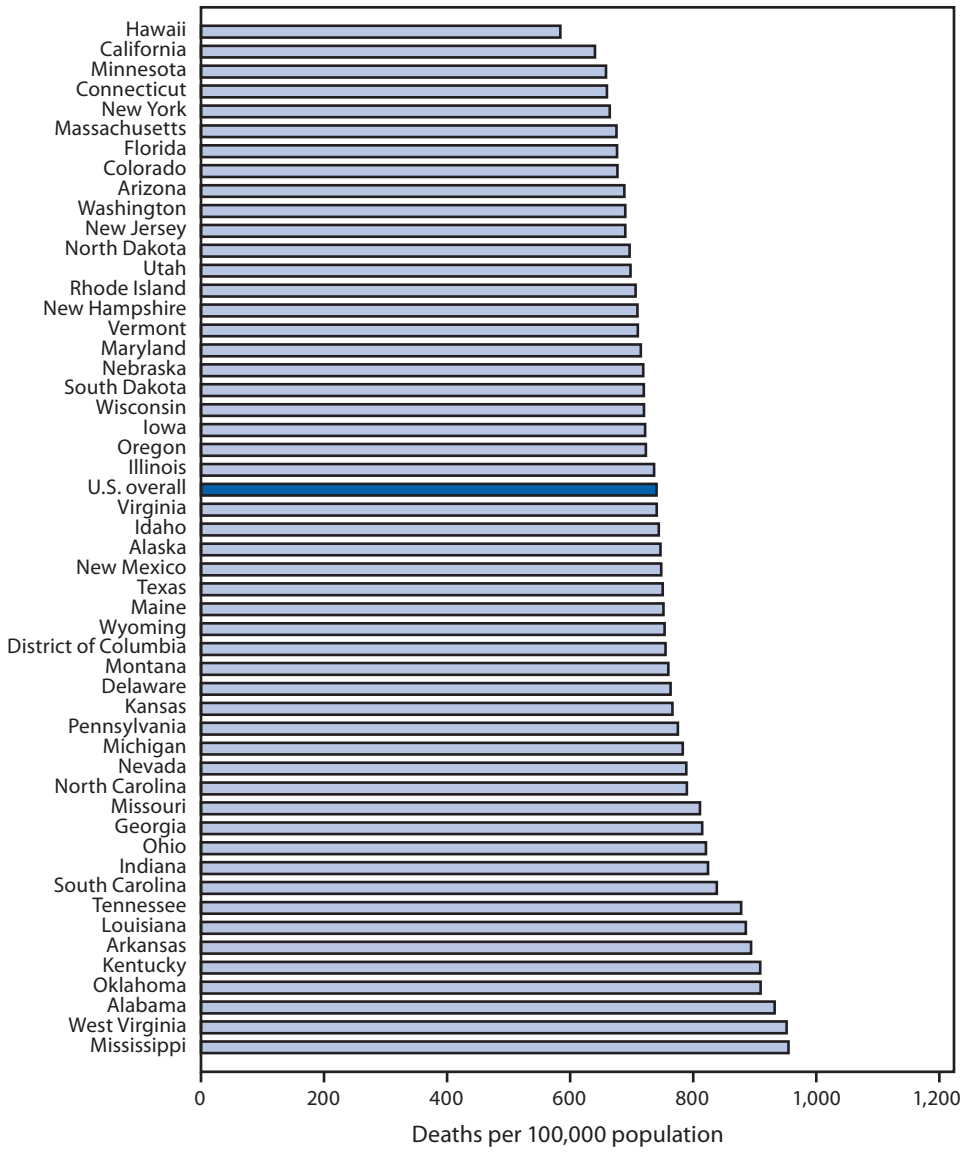
† Totals reported to the Division of Viral Diseases, National Center for Immunization and Respiratory Diseases (NCIRD), as of May 30, 2014.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Age-Adjusted Death Rates,* by State† — United States, 2011



* Rates per 100,000 population were calculated based on postcensal populations as of July 1, 2011.
† U.S. residents only.

In 2011, the overall age-adjusted death rate for the United States was 741.3 per 100,000 population. Among states, Mississippi had the highest death rate (956.1), followed by West Virginia (953.2), Alabama (933.6), and Oklahoma (910.9). Hawaii had the lowest death rate (584.9), followed by California (641.3), Minnesota (659.2), and Connecticut (660.6). The rates for 27 states and the District of Columbia were higher than the overall U.S. rate.

Source: National Vital Statistics System. Mortality public use data files, 2011. Available at http://www.cdc.gov/nchs/data_access/vitalstatsonline.htm.

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Data presented by the Notifiable Disease Data Team and 122 Cities Mortality Data Team in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. Address all inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30329-4027 or to *mmwrq@cdc.gov.*

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