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Performance of Rapid Influenza Diagnostic Tests During Two School Outbreaks of 2009 Pandemic Influenza A (H1N1) Virus Infection — Connecticut, 2009

During May 2009, a few weeks after 2009 pandemic influenza A (H1N1) infection was first detected in the United States (*1*), outbreaks among students from two schools were detected in Greenwich, Connecticut. Staff members from Greenwich Hospital and the Connecticut Department of Public Health collected data on symptoms for 63 patients and submitted nasopharyngeal washings for testing using a rapid influenza diagnostic test (RIDT) for influenza A and B and real-time reverse transcription–polymerase chain reaction (rRT-PCR) assay, thereby affording an opportunity to assess the field performance of the RIDT. A total of 49 patients had infections with pandemic influenza A (H1N1) confirmed by rRT-PCR. This report summarizes the findings from this performance assessment, which indicated that, compared with rRT-PCR, the sensitivity of the RIDT for detecting infection in patients with 2009 pandemic influenza A (H1N1) was 47%, and the specificity was 86%. Sensitivity and specificity did not vary substantially by the presence or absence of CDC-defined influenza-like illness (ILI) or by time from symptom onset to specimen acquisition. In this group of patients, although positive RIDT results performed well in predicting confirmed infection with pandemic H1N1 virus (positive predictive value: 92%), negative tests did not accurately predict the absence of infection (negative predictive value: 32%). These results affirm recent CDC recommendations against using negative RIDT results for management of patients with possible 2009 pandemic influenza A (H1N1) infection (*2*).

During April 29–May 1, 2009, 78 students from a private school (school A) near Greenwich, Connecticut, participated in a class trip to Pennsylvania. Several students became sick with a respiratory illness. Because infection with 2009 pandemic influenza A (H1N1) was suspected, upon returning home, 11 of the students, a sibling, and two other students went to the Greenwich Hospital for outpatient influenza testing and treatment.

During May 18–20, 133 students and eight teachers from a public school (school B) in Greenwich traveled to a camp in Connecticut. Among these students, 36 visited the camp infirmary with fever, headache, or fatigue. The Greenwich Health Department asked physicians at the hospital to assist with testing the students for pandemic H1N1. A total of 67 students and staff from school B became ill, and 49 of these patients went to the hospital for influenza testing.

A total of 63 patients (14 students from school A and 49 students and staff from school B) were tested for influenza at the hospital. A standard symptom survey was completed by a physician for each patient after which a nasopharyngeal washing was performed by an experienced respiratory therapist trained in the procedure. All samples were placed in viral transport media and sent to the Connecticut Department of Public Health laboratory for influenza virus detection by rRT-PCR. Rapid screening for influenza A and B was performed concurrently at the hospital laboratory using the Remel Xpect Flu A&B test (Remel Products, Lenexa, Kansas) according to

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manufacturer's instructions (*3*). Although the number of ill persons who eventually received antiviral therapy is unknown, all nasopharyngeal washings were obtained before initiation of therapy.

Of the 63 patients tested by RIDT, 49 patients, 11 (79%) from school A and 38 (78%) from school B, were found to have 2009 pandemic influenza A (H1N1) infection by rRT-PCR (Figure). Of the 49 patients with confirmed infection, 23 (47%) tested positive (eight from school A and 15 from school B) and 26 (53%) tested negative for 2009 pandemic influenza A (H1N1) by RIDT. Among 11 patients with positive rRT-PCR tests from school A and 38 from school B, the numbers of positive RIDT tests were 8 (73%) and 15 (39%) respectively.

Among the 14 patient samples from both schools that tested negative by rRT-PCR, three were from students at school A, and 11 were from school B. Of the 14 rRT-PCR negative specimens, two tested positive by RIDT (one from school A and one from school B). The overall sensitivity of the RIDT was 23 of 49 (47%), and the specificity was 12 of 14 (86%). The positive predictive value was 23 of 25 (92%), and the negative predictive value was 12 of 38 (32%).

The schools did not differ significantly with respect to percentage of patients with confirmed pandemic H1N1 by rRT-PCR, severity of symptoms, interval between the onset of symptoms and collection of specimens for testing, or overall RIDT positivity rate. Among all the patients tested by RIDT, no significant differences between true positives and false negatives were seen with respect to ILI.* In RIDT positive and RIDT negative patients with pandemic H1N1, the median interval from symptom onset to specimen collection was 36 hours. Of the 34 patients with washings obtained ≤36 hours from the onset of symptoms, 16 (47%) were RIDT positive; of the 15 patients with washings collected after 36 hours of symptoms, seven (47%) were positive. RIDT test performance was assessed for patients with and without CDC-defined ILI (Table). The sensitivity and specificity were approximately the same for the two groups (48% versus 44% and 88% versus 83%, respectively).

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* CDC ILI surveillance case definition: fever (≥100°F [≥37.8°C]), plus cough, sore throat, or both in the absence of another known cause of illness.

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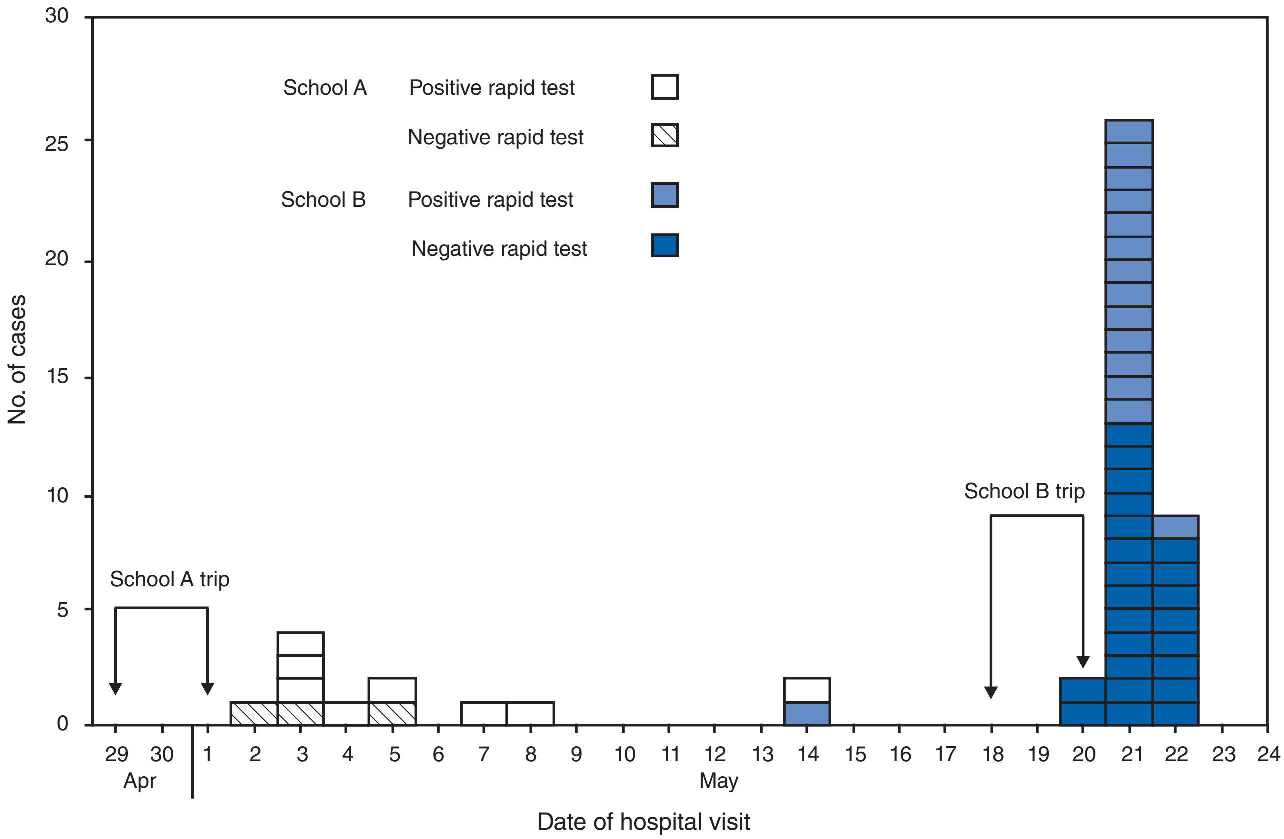
FIGURE. Number of confirmed* cases of 2009 pandemic influenza A (H1N1) virus infections after school trips, by school, date of hospital visit, and result of rapid influenza diagnostic test† — Connecticut, May 2009



* By real-time reverse transcription–polymerase chain reaction assay; all patients tested negative for seasonal influenza.
† Remel Xpect Flu A&B test (Remel Products, Lenexa, Kansas).

TABLE. Performance of a rapid influenza detection test (RIDT)* in patients with suspected and confirmed† 2009 pandemic influenza A (H1N1) virus infection, by clinical syndrome consistent with CDC-defined influenza-like illness (ILI)§ — Connecticut, 2009

		rRT-PCR positive		rRT-PCR negative					
	Total	RIDT positive	RIDT negative	RIDT positive	RIDT negative	Sensitivity %	Specificity %	PPV¶ %	NPV** %
Overall	**63**	**23**	**26**	**2**	**12**	**47**	**86**	**92**	**32**
CDC-defined ILI**	**48**	19	21	1	7	48	88	95	25
No CDC-defined ILI	**15**	4	5	1	5	44	83	80	50

* Remel Xpect Flu A&B test (Remel Products, Lenexa, Kansas).
† By real-time reverse transcription–polymerase chain reaction (rRT-PCR); all patients tested negative for seasonal influenza.
§ CDC ILI surveillance case definition: fever (≥100°F [≥37.8°C]) plus cough, sore throat, or both in the absence of another known cause of illness.
¶ Positive predictive value.
** Negative predictive value.

Editorial Note: When cases of 2009 pandemic influenza A (H1N1) began appearing in the United States in April 2009, several RIDTs had been in common use in the United States as point-of-care tests for seasonal influenza, but the performance of these tests in patients infected with 2009 pandemic influenza A (H1N1) virus was unknown. CDC has since reported varying sensitivities of RIDTs in retrospective analyses of rRT-PCR positive respiratory samples, from 40%–69%. In these analyses, RIDT sensitivity was positively associated with the titer of virus in the sample (*4*).

The analysis in this report of pandemic H1N1 cases at two schools determined that the RIDT used detected less than half the cases confirmed by rRT-PCR. The low sensitivity and low negative predictive value of the test during these outbreaks highlight the limitations of using this test alone to establish diagnosis and aid clinical management. These results affirm current recommendations not to use negative RIDT results to rule out pandemic H1N1 or to make infection control decisions (*2*).

Rapid tests differ in their sensitivity and specificity for detecting seasonal influenza in respiratory specimens but generally have low to moderate sensitivity compared with viral culture or rRT-PCR. Previous RIDT studies have described the performance of the QuickVue Influenza A+B test (Quidel Corporation, San Diego, California) for detecting seasonal influenza in three different populations during 2008. Sensitivity when compared with rRT-PCR was low for all populations (median: 27%; range: 19%–32%) (*5*).

The RIDT used in the current study has a reported sensitivity of 92.5% and a specificity of 100% for the diagnosis of seasonal influenza A by nasopharyngeal wash (*3*). This investigation yielded much lower sensitivity (47%) and specificity (86%) in patients having confirmed infection with 2009 pandemic influenza A (H1N1) virus.

The findings in this report are comparable to recently reported observations of low performance of RIDTs in patients with pandemic H1N1. In a report of hospitalized patients in California, rapid antigen test results were positive in 67% of cases of pandemic H1N1 tested (*6*). In an assessment of rapid testing compared with rRT-PCR conducted on 6,090 patient samples from the New York City area, the sensitivity and specificity for the detection of 2009 pandemic influenza A (H1N1) virus by rapid antigen testing, using the BinaxNOW Influenza A&B test (Binax, Inc., Scarborough, Maine) and the 3M Rapid Detection Flu A+B test (3M, St. Paul, Minnesota) were 17.8% and 93.6% respectively (*7*). A recent report from the Naval Health Research Center described screening 3,066 clinical samples from service personal with influenza-like illness; of those screened, 767 rapid test results by QuickVue Influenza A+B test were available for comparison with rRT-PCR results (*8*). Of 39 patients with pandemic H1N1, 20 were RIDT positive, with a 51% sensitivity; for seasonal influenza A the sensitivity was 63% for H1N1 and 31% for H3N2. Specificity was 99% for all three subtypes when compared with rRT-PCR.

The results of these studies and the findings in this report affirm that a negative result for this rapid test does not rule out 2009 pandemic influenza A (H1N1) virus infection in an individual with symptoms consistent with influenza. Factors that might decrease the performance of rapid influenza antigen tests include improper specimen collection, not testing the recommended clinical sample (e.g., nasal versus nasopharyngeal swab), quality of the specimen, prolonged time from illness onset to specimen collection (because viral shedding decreases over time), and improper handling and storage of the specimen before testing. The reason for the suboptimal detection of 2009 pandemic influenza A (H1N1) by the RIDT used in this study was not specifically determined but did not appear to be related to differences in the interval (median: 36 hours for both groups) from onset of symptoms to specimen collection or to the severity of symptoms. As with all screening tests, the positive and negative predictive values of RIDTs are dependent on the prevalence of the disease in the population.

The findings in this report are subject to at least one limitation. The assessment involved a limited number of patients from two small outbreaks. The results should be viewed in this context. In other field situations (e.g., with other disease prevalences, collection and transport methods, or using other RIDTs), RIDTs might have different performance characteristics.

RIDTs can be an important tool for patient care during the normal influenza season because they usually provide results within 30 minutes. In addition, these tests can be used to make decisions about isolating or cohorting patients in health-care settings and recommending or restricting patient movements in outpatient settings. They might be especially important for hospitals limited by the expense of rRT-PCR and in identifying influenza during outbreaks in defined patient groups, such as those in schools or nursing homes. However, if used for management of patients with possible pandemic H1N1 virus infection, false-negative test reports might result in inappropriate exposure of susceptible persons to infected patients. Additional large studies to better characterize the performance of RIDTs for detection of infection in patients with pandemic H1N1 virus and improvements in rapid testing for pandemic H1N1 are needed.

Acknowledgment

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Anaplasmosis and Ehrlichiosis — Maine, 2008

Anaplasmosis and ehrlichiosis are rickettsial tickborne diseases that have had at least a twofold increase in prevalence in the United States since 2000 (*1,2*). Despite similar clinical presentations, the causative organisms are carried by different ticks with distinct geographic and ecologic associations (*3*). Surveillance efforts are complicated by ambiguous terminology and serologic testing with antibody cross-reactivity. Although anaplasmosis historically has been reported in Maine, ehrlichiosis has been reported infrequently. During 2007–2008, the number of physician-reported anaplasmosis cases nearly doubled in Maine, and ehrlichiosis cases increased more than fourfold. To examine this increase, the Maine Department of Health and Human Services (MDHHS) analyzed available data on tick burden and physician-reported cases of anaplasmosis and ehrlichiosis during 2000–2008. This report describes the results of that analysis, which indicated that *Ixodes scapularis* (the tick vector for *Anaplasma phagocytophilum*) was broadly distributed in Maine, whereas *Amblyomma americanum* (the tick vector for *Erhlichia chaffeenisis*) was scarce. Moreover, 95% of physician-reported ehrlichiosis cases lacked a concurrent serologic assessment to exclude anaplasmosis, suggesting that antibody cross-reactivity might have resulted in misclassification. In 2008, Maine modified case classification to enhance specificity; ehrlichiosis cases that lack a concurrent test for anaplasmosis are now classified as suspect rather than probable and therefore are not included in national surveillance summaries. The accuracy of case classification and surveillance can be improved by educating health-care providers regarding 1) the expected geographic distribution of tick vectors and 2) recommendations for confirmatory testing to distinguish between the causative organisms of anaplasmosis and ehrlichiosis.

In Maine, laboratories electronically report positive anaplasmosis and ehrlichiosis results to the health department (referred to as physician reported). Field epidemiology personnel follow up positive results by interviewing physicians and patients and by obtaining clinical, laboratory, and epidemiologic information required to complete the CDC tickborne rickettsial disease case report form.* MDHHS conducted a review of available data on tick burden in the state and reviewed the clinical and public health surveillance data for physician-reported human ehrlichiosis and anaplasmosis during 2000–2008. Maine classified cases according to Council of State and Territorial Epidemiologists (CSTE) case definition† with the exception that the 2008 cases were classified according to a modified ehrlichiosis case definition that had increased specificity.

* Available at http://www.cdc.gov/ncidod/dvrd/rmsf/case_rep_fm.pdf.
† Available at http://www.cdc.gov/ncphi/disss/nndss/casedef/ehrlichiosis_2008.htm.

Tick Surveillance Data

During 2000–2008, the Vector Borne Disease Laboratory of the Maine Medical Center Research Institute conducted active surveillance of ticks in Maine (through flagging and trapping) and passive surveillance (through receipt of ticks submitted by state residents through the mail) (*4*). A total of 5,089 *I. scapularis* were collected, but only 15 *A. americanum* ticks were detected. All life stages of *I. scapularis* (larvae, nymphs, and adults) were identified; the tick distribution increased and expanded along the southern coastline and up the river valleys, corresponding to areas of increasing settlement of human populations in this geographic distribution. During 2007–2008, Maine residents submitted 1,968 *I. scapularis* and only six *A. americanum*. The surveillance results suggested that *A. americanum*, the ehrlichiosis vector, had only a sparse and sporadic distribution in Maine.

Human Anaplasmosis Surveillance Data

During 2000–2008, a total of 45 cases of anaplasmosis cases were reported in Maine. Fifteen (33%) cases were confirmed, 30 (67%) were probable, and no suspect cases were reported (Tables 1 and 2). Among the 15 confirmed cases, three (20%) patients were diagnosed by demonstration in paired sera of a fourfold or greater increase in antibodies to *A. phagocytophilum* in acute versus convalescent samples; 12 (80%) patients were diagnosed by polmerase chain reaction (PCR) detection of *A. phagocytophilum* DNA, including two patients who also had positive single *A. phagocytophilum* serologic test. Among the 30 probable cases, 23 (77%) patients were diagnosed only by a single test for antibodies to *A. phagocytophilum*, including one (3%) patient who also had detection of morulae consistent with *A. phagocytophilum* on a blood smear. Seven (23%) patients were tested for antibodies to both *A. phagocytophilum* and *E. chaffeensis*, and all showed higher antibody titers to *A. phagocytophilum*. The median patient age among all confirmed and probable cases was 57 years (range: 21–89 years); 28 patients (62%) were males. Seventeen (38%) patients were hospitalized, and one (2%) patient died from renal failure relating to infection. Two (4%) patients were diagnosed with concurrent Lyme disease, and two (4%) with concurrent babesiosis. Reported anaplasmosis cases occurred during April–December; 30 (67%) of 45 patients had onset dates during May–September. Anaplasmosis was reported in six (38%) of 16 counties; the majority occurred in southern coastal Maine. One patient with confirmed anaplasmosis had traveled to New York, an anaplasmosis-endemic state, during the preceding month.

Human Ehrlichiosis Surveillance Data

During 2000–2008, a total of 20 cases of ehrlichiosis were reported in Maine (Tables 1 and 2). The single confirmed case, which was diagnosed by PCR, occurred in a male aged 58 years who worked as an interstate truck driver; therefore, out-of-state exposure to *E. chaffeensis* was possible. An additional 19 ehrlichiosis cases were reported during this same period (including six cases reported during 2005–2007 and 13 cases reported during 2008). All 19 cases were diagnosed by a single positive *Ehrlichia* serologic assay, and none had accompanying serologic tests to exclude anaplasmosis. Although all 13 cases reported in 2008 would have met the CSTE case definition for probable ehrlichiosis, beginning in that year, Maine had adopted a modified ehrlichiosis case definition to increase specificity; therefore, these 13 case were classified as suspect. Ten of the 20 cases were in persons who had either concurrent Lyme disease (seven persons) or babesiosis (three persons), which, like *Anaplasma*, are transmitted by *I. scapularis*.

2008 Classification of Ehrlichiosis Cases

Based on the lack of evidence for a sustained tick vector population in the state, lack of travel history among patients, and the cross-reactive serologic tests for ehrlichiosis and anaplasmosis, MDHHS implemented a new ehrlichiosis case classification strategy using a modified CSTE case definition in 2008 (*5*). Probable ehrlichiosis cases were defined as clinically compatible with one positive immunoglobulin G (IgG) serologic result for *E. chaffeensis* and either a concurrent lower titer serologic test for *A. phagocytophilum* or visualization of intracytoplasmic morulae in peripheral monocytes or macrophages. For cases having serologic reactivity to both agents, the higher antibody level was used to identify the most likely infection (*5*). Ehrlichiosis reports that did not meet this new more stringent probable case definition (i.e., those that were only tested for ehrlichiosis) were classified as suspect cases, which are excluded from national notifiable disease surveillance summaries.

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Editorial Note: The findings in this report underscore that the use of cross-reactive serologic assays, which test for ehrlichiosis alone in anaplasmosis-endemic areas, can result in an inaccurately high ehrlichiosis incidence and contribute to underrecognition of actual anaplasmosis cases. Serologic assays for *A. phagocytophilum* and *E. chaffeensis* have >50% cross reactivity; thus, differentiating between ehrlichiosis or anaplasmosis based on single serologic assay is not possible (*6–8*). In 2008, Maine classified 13 ehrlichiosis cases as suspect because they more likely represent infection with *A. phagocytophilum* given that tick data did not support a sustained ehrlichiosis vector in the state and confirmatory laboratory testing and supporting travel history for ehrlichiosis infection were lacking. The likelihood these suspect cases are anaplasmosis cases is further supported by the fact that 54% of suspect ehrlichiosis cases occurred in persons who had either concurrent Lyme disease or babesiosis, which, like *Anaplasma*, are transmitted by *I. scapularis*. Whether the emergence of anaplasmosis in Maine

TABLE 1. Number and percentage of anaplasmosis and ehrlichiosis cases*, by selected characteristics — Maine, 2000–2008

	Anaplasmosis (n = 45)		Ehrlichiosis (n = 20)	
Characteristic	No.	(%)	No.	(%)
Classification				
Confirmed	15	(33)	1	(5)
Probable	30	(67)	6	(30)
Suspect	0	—	13	(65)
Year				
2000	1	(2)	0	—
2001	1	(2)	0	—
2002	1	(2)	0	—
2003	1	(2)	0	—
2004	1	(2)	0	—
2005	5	(12)	1	(5)
2006	9	(20)	2	(10)
2007	9	(20)	3	(15)
2008	17	(38)	14	(70)
Sex				
Male	28	(62)	9	(45)
Female	17	(38)	11	(55)
Age group (yrs)				
<20	0	—	0	—
20–29	2	(4)	2	(10)
30–39	4	(9)	2	(10)
40–49	11	(24)	6	(30)
50–59	10	(22)	5	(25)
≥60	17	(38)	5	(25)
Unknown	1	(2)	0	—
Coinfections				
Lyme disease	2	(4)	7	(35)
Babesiosis	2	(4)	3	(15)
Outcome				
Hospitalized	17	(38)	2	(10)
Complications†	2	(4)	1	(5)
Death	1	(2)	0	—

* Cases reported during 2000–2007 were classified based on Council of State and Territorial Epidemiologists (CSTE) case definitions (available at http://www.cdc.gov/ncphi/disss/nndss/casedef/ehrlichiosis_2008.htm). However, beginning in 2008, Maine modified the case definition to increase specificity regarding ehrlichiosis; reports with only one serologic test result for ehrlichiosis and no concurrent anaplasmosis test result were classified as suspect in Maine.

† Complications related to infection included renal failure, polymyositis, and meningitis.

TABLE 2. Number and percentage of anaplasmosis and ehrlichiosis cases*, by diagnostic test used and case classification — Maine, 2000–2008

	Anaplasmosis (n = 45)					Ehrlichiosis (n = 20)				
Diagnostic test used	No.	(%)	Confirmed	Probable	Suspect	No.	(%)	Confirmed	Probable	Suspect
Single serology[†]	22	(49)	—	22	—	19	(95)	—	6	13
Single serology for both infections	7	(16)	—	7[§]	—	0	—	—	—	—
Paired serology[¶]	3	(7)	3	—	—	0	—	—	—	—
PCR**	10	(22)	10	—	—	1	(5)	1	—	—
PCR + single serology	2	(4)	2	—	—	0	—	—	—	—
Smear[††] + single serology	1	(2)	—	1	—	0	—	—	—	—

* Cases reported during 2000–2007 were classified based on Council of State and Territorial Epidemiologists (CSTE) case definitions (available at http://www.cdc.gov/ncphi/disss/nndss/casedef/ehrlichiosis_2008.htm). However, beginning in 2008, Maine modified the case definition to increase specificity regarding ehrlichiosis; reports with only one serologic test result for ehrlichiosis and no concurrent anaplasmosis test result were classified as suspect in Maine.

† Serum tested with *Anaplasma phagocytophilum* (for anaplasmosis) or *Ehrlichia chaffeensis* (for ehrlichiosis) antigen, but not both.

§ Seven patients were tested for antibodies to both *A. phagocytophilum* and *E. chaffeensis* concurrently, and all showed higher antibody titers to *A. phagocytophilum*.

¶ Diagnosed by demonstration in paired sera of a fourfold or greater increase in antibodies to *A. phagocytophilum* in acute versus convalescent samples.

** Polymerase chain reaction.

†† Visualization of intracytoplasmic morulae in granulocytes for anaplasmosis or peripheral monocytes or macrophages for ehrlichiosis.

and nationwide is an actual increase in incidence or an increase in awareness and testing is unclear. Reports of anaplasmosis have increased threefold (from 351 cases in 2000 to 1,053 cases in 2008), and reports of ehrlichiosis have increased more than fourfold (from 200 cases in 2000 to approximately 800 cases in 2008) (*1*; CDC, unpublished data, 2009). Most cases of ehrlichiosis have been reported from the southern and south-central United States, corresponding to the geographic distribution of the tick vector, *A. americanum*. However, during 2008–2009, a concerning trend of increased ehrlichiosis case reports from some northern-area states, including Maine, has been noted (CDC, unpublished data, 2009). Possible explanations for this increase include expanding geographic ranges of the tick vector *A. americanum* or misclassification of cases.

Anaplasmosis, referred to as human granulocytic anaplasmosis, is caused by *A. phagocytophilum*. Before a taxonomic reorganization in 2001, this organism was called *Ehrlichia phagocytophilum*, and the infection was described as human granulocytic ehrlichiosis. *I. scapularis* (the black-legged tick), the vector for anaplasmosis, is reported commonly from northern and northeastern states. Ehrlichiosis, known as human monocytic ehrlichiosis, is caused by *E. chaffeensis* and is transmitted by *A. americanum* (the lone star tick). *E. chaffeensis* is commonly reported in the southern and south-central states, where the vector is common. Both anaplasmosis and ehrlichiosis are nationally notifiable diseases. In Maine, the vector *A. americanum* responsible for transmission of *E. chaffeensis* is not endemic. Conversely, *A. phagocytophilum* DNA has been detected in 16% of 94 *I. scapularis* ticks tested in 2008 (*9*). The fact that 95% of physician-reported ehrlichiosis cases lacked a concurrent serologic assessment to exclude anaplasmosis supports the likelihood that antibody cross-reactivity could have resulted in misclassification. One factor contributing to this misclassification might have been confusion among physicians regarding the recent change in terminology for *A. phagocytophilum* infection (from human granulocytic ehrlichiosis to anaplasmosis) and a lack of understanding of appropriate testing strategies. Since taxonomic changes were adopted in 2001, the term "anaplasmosis" has gradually replaced the term "human granulocytic ehrlichiosis" to describe human infections with *A. phagocytophilum*. However, some medical references and commercial test names still use the term "ehrlichiosis," which might cause confusion among physicians regarding the selection of appropriate diagnostic tests.

Health-care providers should assess clinical and ecologic features and, as indicated, include concurrent confirmatory testing for both anaplasmosis and ehrlichiosis or other tickborne diseases when evaluating patients with suspected tickborne illness. Compared with anaplasmosis patients, ehrlichiosis patients might have a higher potential for severe or fatal outcome, and a higher proportion (up to 30%) of ehrlichiosis patients have rash; thus, these diagnostic clues also can prompt physicians to request concurrent testing for ehrlichiosis (*3*). If serologic testing is selected to evaluate patients, serology should include 1) concurrent testing for both *A. phagocytophilum* and *E. chaffeensis* and 2) testing of paired acute and convalescent sera whenever possible. PCR is considered a confirmatory test and is the recommended diagnostic tool preferred over serology because it can differentiate between the two infections (*4,10*). Patients with suspected anaplasmosis or ehrlichiosis should be treated promptly with doxycycline, without regard to initial serologic test results, because antibodies in the first week of illness frequently are not detected.

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Progress Toward Measles Control — African Region, 2001–2008

In 2001, the countries of the World Health Organization (WHO) African Region (AFR) became part of a global initiative with a goal of reducing the number of measles deaths by 50% by 2005, compared with 1999. Recommended strategies for measles mortality reduction included 1) increasing routine coverage for the first dose of measles-containing vaccine (MCV1) for all children, 2) providing a second opportunity for measles vaccination through supplemental immunization activities (SIAs), 3) improving measles case management, and 4) establishing case-based surveillance with laboratory confirmation of all suspected measles cases (*1*). Before introduction of MCV throughout AFR, approximately 1 million measles cases had been reported each year in the early 1980s (*2*). After strengthening measles-control activities, annual reported cases declined to an estimated 300,000–580,000 during the 1990s. This report summarizes the progress made during 2001–2008 toward improving measles control in AFR. During 2001–2008 estimated MCV1 coverage increased from 57% to 73%, SIAs vaccinated approximately 398 million children, and reported measles cases decreased by 93%, from 492,116 in 2001 to 32,278 in 2008. By 2005, global measles deaths had decreased by 60%, and the AFR goal had been achieved (*3*); AFR adopted a new goal to reduce deaths by 90%, compared with 2000, and that goal was achieved in 2006 (*3,4*). However, inaccuracies in reported vaccination coverage exist, surveillance is suboptimal, and measles outbreaks continue to occur in AFR countries. Further progress in measles control will require full implementation of recommended strategies, including validation of vaccination coverage.

Since the 1980s, AFR countries have reported measles vaccination coverage and the number of measles cases each year to the WHO African Regional Office (AFRO), using the WHO and United Nations Children's Fund (UNICEF) Joint Reporting Form. These data are collected through administrative reports from routine vaccination programs and SIAs and routine surveillance systems that provide aggregated case counts based on clinical diagnosis. Estimates of routine coverage with MCV1 are based on review of coverage data from administrative records, surveys, national reports, and consultation with local and regional experts. Coverage achieved during nationwide SIAs against measles are reported on the basis of the reported number of doses administered, divided by the target population.

In 1999, as part of the measles mortality reduction strategy, case-based surveillance with laboratory testing for all suspected measles cases was introduced with support from WHO AFRO. A suspected measles case is defined as 1) any person with generalized maculo-papular rash and fever plus cough or coryza or conjunctivitis or 2) any person in whom a clinician suspects measles. Each suspected measles case should be reported using an individual case-investigation form, and a blood specimen should be collected and sent to the laboratory for measles-specific immunoglobulin M testing. Laboratory confirmation of individual cases is discontinued after an outbreak has been confirmed as measles. An outbreak is confirmed when three or more measles laboratory-confirmed cases are detected in a health facility or district in 1 month; subsequent cases are confirmed by epidemiologic link. An epidemiologic link is defined as a suspected measles case that did not have a specimen collected for laboratory testing and is linked in person, place, and time to a laboratory-confirmed case (i.e., in a patient living in the same district or an adjacent district with a patient with laboratory-confirmed measles where a likelihood of transmission and onset of rash in the two patients within 30 days of each other exists) (*5*). Case-based surveillance data from AFR countries are shared regularly with WHO AFRO. Data quality is monitored using annualized performance indicators that include the 1) percentage of districts reporting one or more suspected case with a blood specimen (target: >80%) and 2) nonmeasles febrile rash illness rate (target: >2 cases per 100,000).

Routine Vaccination Activities

In AFR, MCV1 is administered through routine services to children at age 9 months. According to WHO and UNICEF estimates, AFR MCV1 coverage increased from 57% in 2001 to 73% in 2008 (Figure). In 2008, among the 46 AFR countries,* three (7%) had MCV1 coverage of <60%, 13 (28%) had coverage of 60%–69%, 11 (24%) had coverage of 70–79%, 10 (22%) had coverage of 80–89%, and nine (20%) had coverage of ≥90% (Table 1). As of 2008, five (10%) countries provided a second dose of MCV (MCV2) through routine services: South Africa and Swaziland reported MCV2 coverage of 70%, Lesotho reported MCV2 coverage of 80%, and Algeria and Seychelles reported MCV2 coverage of >95% in 2008.

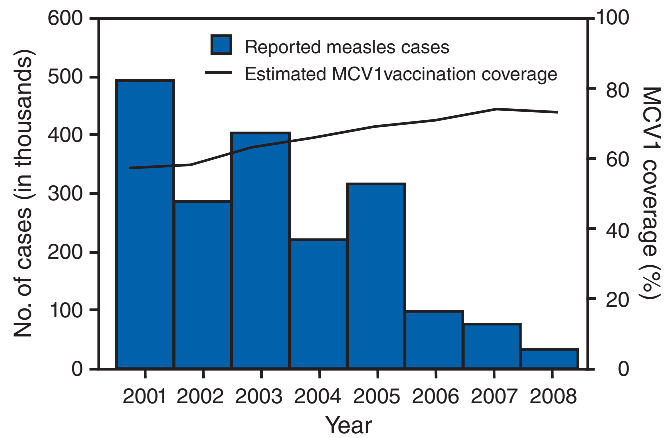
SIA Results

SIAs provide a second opportunity for measles immunization to all children, including those not vaccinated with MCV1 and those previously vaccinated; approximately 15% of children vaccinated with a single dose at age 9 months will not develop immunity to measles. The SIA strategy generally consists of a one-time catch-up SIA, targeted to a wide age range, which aims to reduce susceptibility to measles in the population. This is followed by periodic follow-up SIAs targeting children born since the last SIA, thus reducing the accumulation of susceptible children in new birth cohorts.

Before 2000, seven (15%) AFR countries (Botswana, Lesotho, Malawi, Namibia, South Africa, Swaziland, and Zimbabwe) had completed a catch-up SIA, and Namibia and South Africa had completed a follow-up SIA (*6*). By the end of 2008, 43 AFR countries (all except Algeria, Mauritius, and Seychelles) had completed a catch-up SIA, and all but Comoros and Guinea-Bissau had completed at least one follow-up SIA (Table 2). During 2001–2008, approximately 398 million children were vaccinated during measles SIAs in AFR: 237 million (60%) during catch-up SIAs in 34 countries, and 161 million (40%) during follow-up SIAs in 39 countries (Table 2). Nine countries (Benin, Cameroon, Chad, the Democratic Republic of Congo, Ethiopia, Ghana, Niger, Nigeria, and Tanzania) conducted nationwide SIAs in phases covering different geographic areas implemented over ≥2 years.

* Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe.

FIGURE. Number of reported measles cases* and coverage with the first dose of measles-containing vaccine (MCV1) among children aged <1 year† — World Health Organization (WHO) African Region, 2001–2008



* N = 1.9 million. Confirmed cases of measles reported by member states to WHO and the United Nations Children's Fund (UNICEF) through the Joint Reporting Form.

† Data are from WHO and UNICEF measles vaccination coverage estimates; these estimates are based on reviews of surveys and national reports of administrative coverage. Administrative coverage is calculated by dividing the number of doses of vaccine administered through routine health services by the birth cohort of the previous year.

Measles Surveillance

By December 2008, all AFR countries except Algeria, Comoros, Guinea Bissau, Mauritius, Sao Tome & Principe, and Seychelles had established measles case-based surveillance in accordance with the WHO AFRO measles surveillance guidelines (*5*). In 2008, of the 40 countries with case-based surveillance, 21 (53%) met the target of >80% of districts reporting one or more suspected cases; 24 (60%) had a nonmeasles febrile rash illness rate of >2 cases per 100,000 population; and 16 (40%) met both targets.

Monitoring Measles Incidence

Following implementation of the measles mortality reduction strategies during 2001–2008, including introduction of case-based measles surveillance, the number of reported measles cases decreased 93%, from 492,116 in 2001 to 32,278 in 2008 (Figure). Average annual measles incidence in AFR decreased 66%, from 50.2 per 100,000 population during 2001–2004 to 17.2 during 2005–2008 (Table 1). Despite this decrease, during 2005–2008, 14 countries† reported outbreaks. Outbreak field investigations conducted during 2003–2007 in South

Africa (1,676 cases, 2003–2005) (*7*), Kenya (2,544 cases, 2005–2007) (*8*), and Tanzania (1,533 cases, 2006–2007) (*9*) found that failure to vaccinate was the primary cause. In 2008, outbreaks also contributed to annual case counts in Burkina Faso (395), Cameroon (495), the Democratic Republic of Congo (12,461), Ethiopia (3,511), Niger (1,317), and Nigeria (9,960) (*2*).

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Editorial Note: In 2008, after implementation of the measles mortality reduction strategy, routine measles vaccination coverage in AFR reached 73%, SIAs were conducted in nearly all AFR countries, and reported measles cases decreased to a historic low of 32,278. According to previously published WHO estimates, by 2006 AFR had achieved approximately 90% reduction in measles deaths, compared with 2000 (*3*). However, despite this progress, vaccination coverage reports remain imprecise, disease surveillance remains suboptimal, and outbreaks continue to occur, even in countries that reported implementation of all recommended components of the measles strategy. Available mathematical models likely overestimate the disease burden and underreporting of measles cases is common, even with high-performing surveillance systems; therefore, caution is recommended when drawing comparisons between reported incidence of measles and estimates of measles deaths generated from models.

SIAs are recommended to provide a second opportunity for immunization and increase the likelihood of vaccinating hard-to-reach children. SIA coverage usually is estimated by an administrative method relying on the reported number of vaccine doses administered and available target population denominator data, both of which often are imprecise. For example, during 2001–2008, several countries reported vaccinating >100% of children targets in SIAs. Improved methods for determining the actual target population size for SIAs are needed; reported coverage also should be routinely validated by independent surveys. In addition, detailed field investigations of outbreaks should be undertaken to identify post-SIA risk factors for measles, and help refine vaccination strategies.

The findings in this report are subject to at least two limitations. First, a change in measles surveillance methods might result in underestimates or overestimates of the disease burden over time. For example, in 1999, AFR countries routinely

† Angola, Benin, Burkina Faso, Cameroon, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Kenya, Mali, Niger, Nigeria, South Africa, Tanzania, and Uganda.

TABLE 1. Routine measles vaccination coverage* and measles incidence,† by country — World Health Organization (WHO) African Region, 2001–2008

Country	% coverage with first dose measles vaccine (MCV1)		Average annual measles incidence per 100,000 population	
	2001	2008	2001–2004	2005–2008
WHO African Region	**54**	**73**	**50.2**	**17.2**
Algeria	81	83	21.4	2.6
Angola	72	79	37.0	3.3
Benin	70	61	28.5	4.9
Botswana	91	94	0.9	0.2
Burkina Faso	54	75	18.0	1.3
Burundi	76	84	4.6	3.3
Cameroon	47	80	40.9	1.9
Cape Verde	75	96	0.0	0.0
Central African Republic	35	62	36.4	3.2
Chad	26	23	160.4	5.0
Comoros	70	76	0.0	40.4
Congo	35	79	94.1	2.6
Côte d’Ivoire	75	63	31.1	0.2
Democratic Rep. of Congo	49	67	47.5	137.2
Equatorial Guinea	51	51	64.9	16.7
Eritrea	84	95	6.7	1.1
Ethiopia	53	74	2.2	2.1
Gabon	55	55	105.0	1.7
Gambia	89	91	6.7	0.0
Ghana	81	86	34.2	1.1
Guinea	44	64	34.9	0.5
Guinea-Bissau	72	76	89.7	0.2
Kenya	73	90	9.4	3.2
Lesotho	70	85	3.2	0.0
Liberia	58	64	13.9	0.2
Madagascar	57	81	176.8	0.0
Malawi	82	88	2.9	0.6
Mali	53	68	12.9	0.5
Mauritania	58	65	96.3	1.4
Mauritius	98	90	16.3	0.7
Mozambique	74	77	66.8	15.6
Namibia	58	73	25.9	0.3
Niger	37	80	436.8	7.0
Nigeria	35	62	72.9	21.9
Rwanda	69	92	14.9	1.8
Sao Tome & Principe	75	93	0.0	0.0
Senegal	48	77	99.6	0.0
Seychelles	99	95	0.0	3.3
Sierra Leone	50	60	10.0	0.5
South Africa	69	62	1.8	0.4
Swaziland	72	95	9.9	0.0
Tanzania	83	88	14.1	6.2
Togo	53	77	11.7	1.0
Uganda	61	68	123.5	7.9
Zambia	84	85	98.7	2.4
Zimbabwe	73	66	3.7	1.8

* WHO and United Nations Children’s Fund (UNICEF) estimates of routine measles vaccination coverage are based on reviews of surveys and national reports of administrative coverage. Administrative coverage is calculated by dividing the number of doses of vaccine administered through routine health services by the birth cohort of the previous year.

† Measles incidence is calculated using confirmed measles cases reported by member states to WHO and UNICEF through the Joint Reporting Form and population estimates from: World population prospects: the 2008 revision, United Nations Population Division, available at http://esa.un.org/unpp.

TABLE 2. Measles supplementary immunization activities (SIAs), by type and country — World Health Organization (WHO) African Region, 2001–2008

Country	Year	Target age group	Type of SIA*	Children reached in targeted age group: No.	Children reached in targeted age group: Administrative coverage† (%)
Algeria	NA§	NA	NA	NA	NA
Angola	2003	9 mos–14 yrs	Catch-up	7,226,105	95
	2006	9–59 mos	Follow-up	3,210,160	97
Benin	2001	9 mos–14 yrs	Catch-up	950,780	>100¶
	2003	9 mos–14 yrs	Catch-up	2,299,583	>100
	2005	9–59 mos	Follow-up	1,137,163	>100
	2008	9–59 mos	Follow-up	1,272,621	>100
Botswana	2005	9–59 mos	Follow-up	179,202	99
Burkina Faso	2001	9 mos–14 yrs	Catch-up	4,943,115	96
	2004	9–59 mos	Follow-up	2,882,208	>100
	2007	9–59 mos	Follow-up	3,145,255	>100
Burundi	2002	9 mos–14 yrs	Catch-up	2,767,054	90
	2006	9–59 mos	Follow-up	1,226,689	>100
Cameroon	2001	9 mos–14 yrs	Catch-up	2,789,542	93
	2002	9 mos–14 yrs	Catch-up	4,570,817	90
	2006	9–59 mos	Follow-up	1,249,041	99
	2007	9–59 mos	Follow-up	1,763,167	91
Cape Verde	2005	9–59 mos	Follow-up	46,889	93
Central African Republic	2005	9 mos–14 yrs	Catch-up	1,183,583	91
	2006	9 mos–14 yrs	Catch-up	515,956	96
	2008	9–59 mos	Follow-up	683,302	>100
Chad	2005	9 mos–14 yrs	Catch-up	1,641,896	80
	2006	9 mos–14 yrs	Catch-up	2,735,760	>100
	2008	9–59 mos	Follow-up	1,782,689	96
Comoros	2005	6 mos–14 yrs	Catch-up	109,815	99
	2007	6 mos–14 yrs	Catch-up	231,263	81
Congo	2004	9 mos–14 yrs	Catch-up	1,356,625	78
	2007	9–59 mos	Follow-up	677,390	95
Côte d'Ivoire	2005	9 mos–14 yrs	Catch-up	7,894,327	88
	2008	9–59 mos	Follow-up	3,082,438	95
Democratic Republic of the Congo	2002	9 mos–14 yrs	Catch-up	5,554,824	96
	2004	6 mos–14 yrs	Catch-up	8,604,754	86
	2005	6 mos–14 yrs	Catch-up	6,957,653	89
	2006	9 mos–14 yrs	Catch-up	6,970,229	—**
	2006	9–59 mos	Follow-up	5,723,858	99
	2007	9–59 mos	Follow-up	3,768,794	>100
	2008	9–59 mos	Follow-up	2,811,092	99
Equatorial Guinea	2005	9 mos–14 yrs	Catch-up	119,462	44
Eritrea	2003	9 mos–14 yrs	Catch-up	1,047,862	82
	2006	9–59 mos	Follow-up	387,479	95
Ethiopia	2003	9 mos–14 yrs	Catch-up	5,101,001	91
	2004	6 mos–14 yrs	Catch-up	7,422,074	84
	2005	6 mos–14 yrs	Catch-up	136,935	69
	2005	9 – 59 mos	Follow-up	987,221	92
	2006	9–59 mos	Follow-up	10,169,187	87
	2007	6–59 mos	Follow-up	1,072,701	98
	2008	6–59 mos	Follow-up	10,848,474	92
Gabon	2004	9 mos–14 yrs	Catch-up	502,959	80
	2007	9–59 mos	Follow-up	190,035	83
Gambia	2003	9 mos–14 yrs	Catch-up	677,830	92
	2007	9–59 mos	Follow-up	241,214	96
Ghana	2001	9 mos–14 yrs	Catch-up	790,798	99
	2002	9 mos–14 yrs	Catch-up	7,827,605	>100
	2006	9–59 mos	Follow-up	3,994,052	79

See Table 2 footnotes on page 1041.

TABLE 2. Measles supplementary immunization activities (SIAs), by type and country — World Health Organization (WHO) African Region, 2001–2008

Country	Year	Target age group	Type of SIA*	Children reached in targeted age group: No.	Children reached in targeted age group: Administrative coverage† (%)
Guinea	2003	9 mos–14 yrs	Catch-up	3,202,848	98
	2006	9–59 mos	Follow-up	1,707,633	97
Guinea-Bissau	2006	6 mos–14 yrs	Catch-up	590,602	85
Kenya	2002	9 mos–14 yrs	Catch-up	13,302,991	98
	2006	9–59 mos	Follow-up	5,260,241	>100
Lesotho	2003	9–59 mos	Follow-up	178,522	87
	2007	9–59 mos	Follow-up	196,490	92
Liberia	2004	—	—	—	—
	2007	9–59 mos	Follow-up	629,676	97
Madagascar	2004	9 mos–14 yrs	Catch-up	8,900,657	99
	2007	9–59 mos	Follow-up	3,053,702	100
Malawi	2002	9–59 mos	Follow-up	1,906,985	>100
	2005	9–59 mos	Follow-up	2,110,341	>100
	2008	9–59 mos	Follow-up	2,087,375	100
Mali	2001	9 mos–14 yrs	Catch-up	4,998,491	99
	2004	9–59 mos	Follow-up	2,426,497	>100
	2007	9–59 mos	Follow-up	2,562,537	>100
Mauritania	2004	9 mos–14 yrs	Catch-up	1,167,307	>100
	2008	9–59 mos	Follow-up	464,564	98
Mauritius	NA	NA	NA	NA	NA
Mozambique	2005	9–59 mos	Catch-up	8,222,157	97
	2008	9–59 mos	Follow-up	3,342,280	>100
Namibia	2003	9–59 mos	Follow-up	318,240	94
	2006	9–59 mos	Follow-up	318,905	97
Niger	2004	9 mos–14 yrs	Catch-up	5,071,149	99
	2005	9 mos–14 yrs	Catch-up	332,318	>100
	2008	9–59 mos	Follow-up	2,942,498	100
Nigeria	2005	9 mos–14 yrs	Catch-up	28,538,974	96
	2006	9 mos–14 yrs	Catch-up	26,353,793	83
	2008	9–59 mos	Follow-up	28,363,479	>100
Rwanda	2003	6 mos–14 yrs	Catch-up	3,082,583	>100
	2006	9–59 mos	Follow-up	1,380,870	>100
Sao Tome & Principe	2007	9 mos–14 yrs	Catch-up	64,487	>100
Senegal	2003	9 mos–14 yrs	Catch-up	4,854,077	98
	2006	9–59 mos	Follow-up	1,833,931	99
Seyechelles	NA	NA	NA	NA	NA
Sierra Leone	2003	9 mos–14 yrs	Catch-up	2,404,882	93
	2006	9–59 mos	Follow-up	751,107	100
South Africa	2004	9–59 mos	Follow-up	3,501,447	—
	2007	9–59 mos	Follow-up	3,784,440	87
Swaziland	2002	9–59 mos	Follow-up	127,829	81
	2006	9–59 mos	Follow-up	140,143	100
Tanzania	2001	9 mos–14 yrs	Catch-up	3,687,390	>100
	2002	7–14 yrs	Catch-up	6,739,197	97
	2005	9–59 mos	Follow-up	6,036,865	99
	2008	6 mos–10 yrs	Catch-up	10,826,519	86
Togo	2001	9 mos–14 yrs	Catch-up	2,393,700	99
	2004	9–59 mos	Follow-up	887,668	100
Uganda	2001	9 mos–14 yrs	Catch-up	614,516	>100
	2003	6 mos–14 yrs	Catch-up	13,457,127	>100
	2006	9–59 mos	Follow-up	5,301,424	100

TABLE 2. Measles supplementary immunization activities (SIAs), by type and country — World Health Organization (WHO) African Region, 2001–2008

Country	Year	Target age group	Type of SIA*	Children reached in targeted age group: No.	Children reached in targeted age group: Administrative coverage† (%)
Zambia	2002	6 mos–14 yrs	Catch-up	729,469	>100
	2003	6 mos–14 yrs	Catch-up	4,955,687	>100
	2007	9–59 mos	Follow-up	2,204,553	>100
Zimbabwe	2002	9–59 mos	Follow-up	1,537,263	85
	2006	9–59 mos	Follow-up	1,407,510	95
Total				**397,625,156**	

* SIAs include one-time catch-up vaccination campaigns targeting a wide age range with the aim to reduce susceptibility to measles in the population and periodic follow-up SIAs targeting children born since the last SIA, thus reducing the accumulation of susceptible children in new birth cohorts. SIAs provide an initial dose of measles vaccine for children who do not access routine services and a second dose for those previously vaccinated.

† Administrative coverage is calculated by dividing the number of doses of vaccine administered during the SIA by the targeted number of children. The number of targeted children is usually determined by using projections of available census data.

§ Not applicable; country did not conduct any SIAs.

¶ Administrative coverage >100% usually is attributed to either an underestimation of the number of children in the targeted age group (low denominator), or vaccination of children from nontargeted geographic areas or age groups (high numerator).

** Not available.

reported an aggregated number of clinically diagnosed measles cases; however, after implementation of measles case-based surveillance, by 2005, most countries had changed to reporting laboratory-confirmed measles cases (*6*). Second, although the case definition for suspected measles remained the same, the change in measles reporting practices might have led to either underreporting, because of the additional resources needed to complete individual case investigations and collect blood samples, or overreporting because of overall efforts to strengthen measles surveillance.

In light of progress made toward reducing measles deaths, a more advanced goal was proposed recently for the region with several recommendations to improve vaccination coverage and surveillance performance. The AFR measles technical advisory group met in May 2008 and recommended that AFR countries aim to meet the following targets by 2012: 1) reducing estimated measles deaths by 98%, compared with 2000 estimates; 2) reducing measles incidence to < 5 cases per 1 million population per year; 3) achieving ≥90% routine MCV1 coverage nationwide and >80% in all districts; 4) achieving >95% SIA coverage in all districts; and 5) attaining two primary measles surveillance performance indicator targets (a nonmeasles febrile rash illness rate of >2 cases per 100,000 population per year and one or more suspected measles case investigated with blood specimen in >80% of districts per year); and 6) routine reporting from all districts (*10*). The group also recommended that AFR countries consider introduction of MCV2 in the routine vaccination schedule if MCV1 coverage of >80% has been achieved and maintained for ≥3 consecutive years and at least one of the two primary measles surveillance indicator targets has been achieved and maintained for at least 2 years. For countries adopting a 2-dose routine measles vaccination schedule, continued follow-up SIAs were recommended for all new birth cohorts every 3–5 years until national MCV2 coverage of ≥90% is sustained for at least 2 years (*10*).

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Updated Recommendation from the Advisory Committee on Immunization Practices (ACIP) for Revaccination of Persons at Prolonged Increased Risk for Meningococcal Disease

The Advisory Committee on Immunization Practices (ACIP) recommends quadrivalent meningococcal conjugate vaccine, (MCV4) (Menactra, Sanofi Pasteur, Swiftwater, Pennsylvania) for all persons aged 11–18 years and for persons aged 2–55 years at increased risk for meningococcal disease (*1–3*). MCV4 is licensed as a single dose. Because of the high risk for meningococcal disease among certain groups and limited data on duration of protection, at its June 2009 meeting ACIP recommended that persons previously vaccinated with either MCV4 or MPSV4 (Menomune, Sanofi Pasteur) who are at prolonged increased risk for meningococcal disease should be revaccinated with MCV4. Persons who previously were vaccinated at age ≥7 years and are at prolonged increased risk should be revaccinated 5 years after their previous meningococcal vaccine, and persons who previously were vaccinated at ages 2–6 years and are at prolonged increased risk should be revaccinated 3 years after their previous meningococcal vaccine. Persons at prolonged increased risk for meningococcal disease include 1) persons with increased susceptibility such as persistent complement component deficiencies (e.g., C3, properdin, Factor D, and late complement component deficiencies), 2) persons with anatomic or functional asplenia, and 3) persons who have prolonged exposure (e.g., microbiologists routinely working with *Neisseria meningitidis*, or travelers to or residents of countries where meningococcal disease is hyperendemic or epidemic). This report provides the rationale for the new recommendation and updates and replaces previous recommendations for revaccination with MCV4.

ACIP's Meningococcal Vaccine Work Group reviewed data on the risk for meningococcal disease, antibody titer decline, and the safety and immunogenicity of revaccination with MCV4 at 3 years and 5 years after the first dose of MCV4 or MPSV4 (2,3). Persons with prolonged increased risk for meningococcal disease have increased susceptibility to the disease or ongoing increased risk for exposure to N. meningitidis, higher levels of serum bactericidal antibody (SBA) against N. meningitidis can provide these groups increased protection against disease. SBA is a measure of the ability of sera to kill a strain of N. meningitidis in the presence of complement. In clinical trials, a baby rabbit SBA titer of 1:128 was used as a conservative correlate of protection (1). Small subsets of subjects from the MCV4 prelicensure clinical trial were revaccinated 3 years (n = 76) and 5 years (n = 134) after receiving MCV4. Of 71 persons aged 11–18 years at primary vaccination who had been vaccinated with MCV4 3 years previously, 75% and 86% had SBA titers greater than 1:128 for serogroups C and Y, respectively, before revaccination. Of 108 persons aged 2–10 years at primary vaccination who had been vaccinated with MCV4 5 years previously, 55% and 94% had SBA titers greater than 1:128 for serogroups C and Y, respectively, before revaccination. All persons revaccinated with MCV4 in these studies achieved SBA titers greater than 1:128 for serogroups C and Y. Approximately 50%–70% of persons in both the previously vaccinated (n = 210) and vaccine naive groups (n = 323) reported mild to moderate local and systemic adverse events after revaccination (or initial vaccination) with MCV4. However, no serious adverse events were reported in either group (Sanofi Pasteur, unpublished data, 2009).

On the basis of these data, expert opinion of the workgroup members, and feedback from partner organizations, the workgroup proposed that persons at prolonged increased risk for meningococcal disease be revaccinated with MCV4. ACIP approved this proposal at its June 24, 2009, meeting. Persons who previously were vaccinated at age ≥7 years and are at prolonged increased risk should be revaccinated 5 years after their previous meningococcal vaccine. Persons who previously were vaccinated at ages 2–6 years and are at prolonged increased risk should be revaccinated 3 years after their previous meningococcal vaccine. Persons who remain in one of these increased risk groups indefinitely should continue to be revaccinated at 5-year intervals.

Although the duration of protection from MCV4 is unknown, most entering college students will have received MCV4 within the preceding 4 years. Because of the limited period of increased risk, ACIP currently does not recommend that college freshmen living in dormitories who were previously vaccinated with MCV4 be revaccinated. However, college freshmen living in dormitories who were vaccinated with MPSV4 ≥5 years previously are recommended to be vaccinated with MCV4. Information regarding MCV4 and other recommendations for persons aged 2–55 years (*2,3*), including a routine recommendation for vaccination with MCV4 in persons aged 11–18 years (*4*), has been published previously.

References

1. Food and Drug Administration. Product approval information-licensing action, package insert: Meningococcal (groups A, C, Y, W-135) polysaccharide diphtheria toxoid conjugate vaccine Menactra. Rockville, MD: US Department of Health and Human Services, Food and Drug Administration; 2005.
2. CDC. Prevention and control of meningococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54(No. RR-7).

3. CDC. Recommendation from the Advisory Committee on Immunization Practices (ACIP) for use of quadrivalent meningococcal conjugate vaccine (MCV4) in children aged 2–10 years at increased risk for invasive meningococcal disease. MMWR 2007;56:1265–6.
4. CDC. Revised recommendations of the Advisory Committee on Immunization Practices to vaccinate all persons aged 11–18 years with meningococcal conjugate vaccine. MMWR 2007;56:794–5.

Announcement

World Heart Day — September 27, 2009

Each year, approximately 17 million persons die from cardiovascular disease, mainly heart disease and stroke, making it the world's leading cause of death (*1*). Controlling certain risk factors, such as high blood pressure, high cholesterol, diabetes, obesity, tobacco use, and physical inactivity, can help prevent heart disease and stroke.

In 2000, the World Heart Federation, a nongovernmental organization based in Geneva, Switzerland, created the annual World Heart Day campaign to increase public awareness of the threat of heart disease and stroke. The theme of the 2009 World Heart Day is "Work with Heart — A Workplace That Encourages Healthy Habits Can Reduce Heart Disease and Stroke." Promoting physical activity and healthful eating and discouraging tobacco use around the workplace are simple ways to foster health in the workplace. Activities organized by members and partners of the World Heart Federation will include public talks, concerts, and sporting events. The national member organizations in the United States are the American College of Cardiology and the American Heart Association.

CDC funds heart disease and stroke prevention programs in 41 states and the District of Columbia. Additional information about these programs is available at http://www.cdc.gov/dhdsp/state_program/index.htm. Information about World Heart Day and the World Heart Federation is available at http://www.world-heart-federation.org/what-we-do/world-heart-day.

Reference

1. World Health Organization. Preventing chronic diseases: a vital investment. Geneva, Switzerland: World Health Organization; 2005. Available at http://www.who.int/chp/chronic_disease_report.

Announcement

NHANES 50th Anniversary and Conference

The 50th anniversary of the National Health and Nutrition Examination Survey (NHANES) will be celebrated on September 29, 2009, at a conference at the National Center for Health Statistics in Hyattsville, Maryland. Collaborating agencies, data users, and program and field staff members will share their perspectives on the survey.

NHANES began in 1959 as the National Health Examination Survey. NHANES data come from household interviews and standardized examinations and laboratory testing of a sample of the nation's civilian, noninstitutionalized population. NHANES has expanded since the survey's inception to include a nutritional component now conducted in collaboration with the U.S. Department of Agriculture and measures of environmental exposure with the National Center for Environmental Health.

NHANES has long been a primary source of data on the nation's health. NHANES findings were used to set the goals and track the progress in reducing cholesterol levels, the prevalence of high blood pressure, and the risks of blood lead exposure in the United States. NHANES documented the rise in obesity and diabetes and produced the first population-based estimates of human immunodeficiency virus infection and osteoporosis. NHANES data also are used for the growth charts by which pediatricians and parents check children's growth and development.

A hallmark of NHANES is its partnerships with other CDC programs, the National Institutes of Health, other U.S. Department of Health and Human Services programs, and other government agencies to collect data needed for public health policies and practice. Additional information about the NHANES 50th anniversary is available at http://www.cdc.gov/nchs/nhanes/nhanes50th.htm.

Announcement

Epidemiology in Action: Intermediate Analytic Methods Course

CDC and Emory University's Rollins School of Public Health will cosponsor the course Epidemiology in Action: Intermediate Analytic Methods, January 11–15, 2010, at Emory University's Rollins School of Public Health. The course is designed for practicing public health professionals who have had training and experience in basic applied epidemiology and would like training in additional quantitative skills related to analysis and interpretation of epidemiologic data.

The course includes a review of the fundamentals of descriptive epidemiology and biostatistics, measures of association, normal and binomial distributions, confounding, statistical tests, stratification, logistic regression models, and computer programs as used in epidemiology.

The prerequisite is an introductory course in epidemiology, such as Epidemiology in Action or the International Course in Applied Epidemiology. Tuition will be charged. The application deadline is December 1, 2009, or until all slots have been filled.

Additional information and applications are available by mail (Emory University, Hubert Global Health Dept [Attn: Pia], 1518 Clifton Rd. NE, Rm. 746, Atlanta, GA 30322); by telephone (404-727-3485); by fax (404-727-4590); online (http://www.sph.emory.edu/epicourses); or by e-mail (pvaleri@sph.emory.edu).

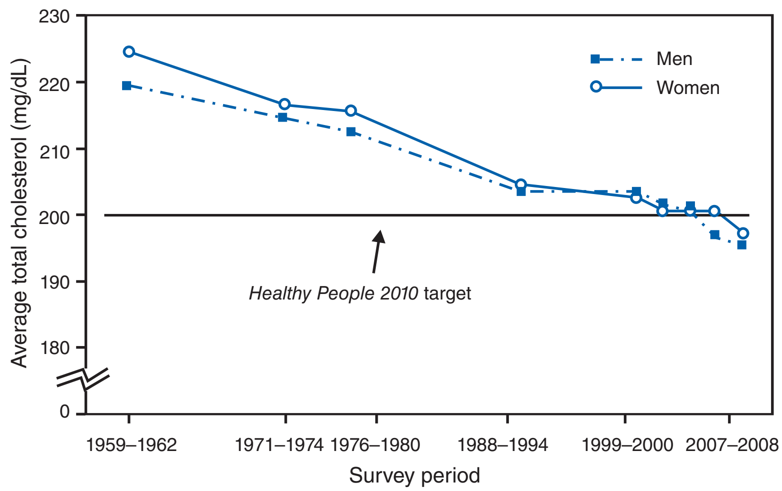
Erratum: Vol. 58, No. 34

In the QuickStats on page 955, “Percentage of Adults Aged ≥18 Years Who Engaged in Leisure-Time Strengthening Activities, by Age Group and Sex — National Health Interview Survey, United States, 2008,” an error occurred. The bar for males aged ≥18 years should show the value **30.9%**.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Average Total Cholesterol Level Among Men and Women Aged 20–74 Years — National Health and Nutrition Examination Survey, United States, 1959–1962 to 2007–2008*



* Graph points represent serum total cholesterol levels at the midpoint of the survey years for the National Health Examination Survey conducted during 1959–1962 and the National Health and Nutrition Examination Surveys conducted during 1971–1974, 1976–1980, 1988–1994, 1999–2000, 2001–2002, 2003–2004, 2005–2006, and 2007–2008. Data were age adjusted by the direct method to the 2000 Census population estimates using the age groups 20–39 years, 40–59 years, and 60–74 years.

From 1959–1962 to 2007–2008, the average total cholesterol level among adults aged 20–74 years declined from 222 mg/dL to 197 mg/dL. The *Healthy People 2010* objective to reduce average cholesterol levels below 200 mg/dL was achieved for men in this age group in the 2005–2006 survey and for women in 2007–2008.

SOURCES: National Health Examination Survey, 1959–1962; National Health and Nutrition Examination Surveys, 1971–1974, 1976–1980, 1988–1994, 1999–2000, 2001–2002, 2003–2004, 2005–2006, and 2007–2008

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending September 19, 2009 (37th)*

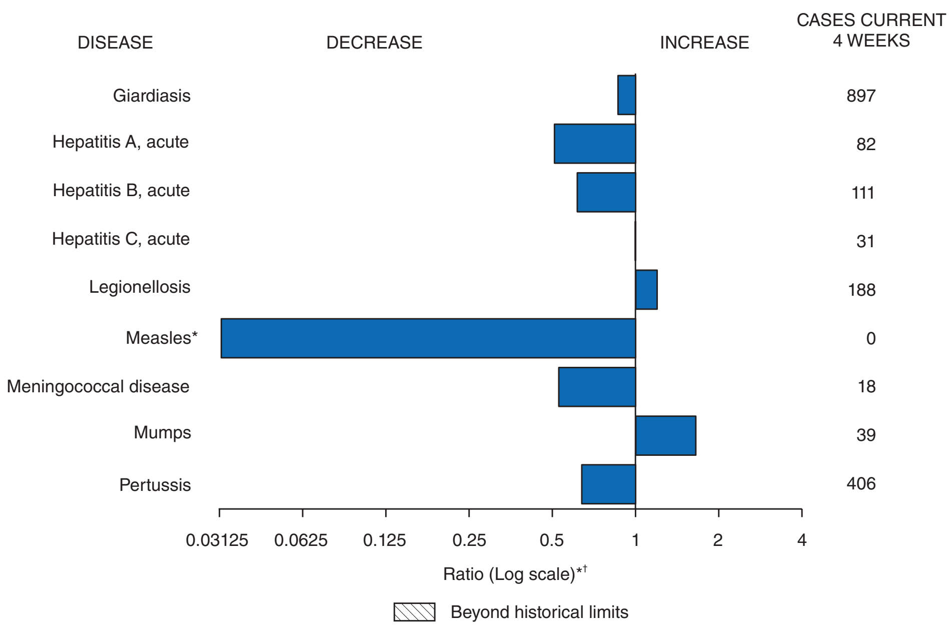
Disease	Current week	Cum 2009	5-year weekly average[†]	Total cases reported for previous years					States reporting cases during current week (No.)
				2008	2007	2006	2005	2004	
Anthrax	—	—	0	—	1	1	—	—	
Botulism:									
foodborne	—	12	0	17	32	20	19	16	
infant	1	35	2	109	85	97	85	87	WA (1)
other (wound and unspecified)	—	17	1	19	27	48	31	30	
Brucellosis	2	70	2	80	131	121	120	114	OH (1), OR (1)
Chancroid	1	21	0	25	23	33	17	30	PA (1)
Cholera	—	4	0	5	7	9	8	6	
Cyclosporiasis[§]	1	106	2	139	93	137	543	160	FL (1)
Diphtheria	—	—	—	—	—	—	—	—	
Domestic arboviral diseases[§,¶]:									
California serogroup	—	22	4	62	55	67	80	112	
eastern equine	—	3	0	4	4	8	21	6	
Powassan	—	1	0	2	7	1	1	1	
St. Louis	—	7	1	13	9	10	13	12	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis[§,**]:									
Ehrlichia chaffeensis	12	516	16	1,137	828	578	506	338	NY (4), OH (1), MO (1), VA (2), FL (1), TN (2), OK (1)
Ehrlichia ewingii	—	6	0	9	—	—	—	—	
Anaplasma phagocytophilum	6	364	17	1,026	834	646	786	537	NY (6)
undetermined	2	81	4	180	337	231	112	59	TN (2)
Haemophilus influenzae,[††]									
invasive disease (age <5 yrs):									
serotype b	—	16	0	30	22	29	9	19	
nonserotype b	2	145	2	244	199	175	135	135	MN (1), OK (1)
unknown serotype	1	173	2	163	180	179	217	177	PA (1)
Hansen disease[§]	—	45	2	80	101	66	87	105	
Hantavirus pulmonary syndrome[§]	—	6	1	18	32	40	26	24	
Hemolytic uremic syndrome, postdiarrheal[§]	2	134	8	330	292	288	221	200	MI (1), TN (1)
Hepatitis C viral, acute	10	1,404	15	878	845	766	652	720	PA (1), FL (3), KY (1), TN (2), OK (2), CA (1)
HIV infection, pediatric (age <13 years)[§§]	—	—	2	—	—	—	380	436	
Influenza-associated pediatric mortality[§,¶¶]	3	118	0	90	77	43	45	—	VA (1), TX (2)
Listeriosis	14	489	22	759	808	884	896	753	PA (3), OH (4), FL (3), AR (3), CA (1)
Measles***	—	55	1	140	43	55	66	37	
Meningococcal disease, invasive[†††]:									
A, C, Y, and W-135	—	185	4	330	325	318	297	—	
serogroup B	1	98	2	188	167	193	156	—	OK (1)
other serogroup	1	20	0	38	35	32	27	—	OK (1)
unknown serogroup	4	329	9	616	550	651	765	—	OH (2), GA (1), CA (1)
Mumps	20	289	14	454	800	6,584	314	258	NYC (18), MO (1), NC (1)
Novel influenza A virus infections	—	§§§	0	2	4	N	N	N	
Plague	—	6	0	3	7	17	8	3	
Poliomyelitis, paralytic	—	—	0	—	—	—	1	—	
Polio virus infection, nonparalytic[§]	—	—	—	—	—	N	N	N	
Psittacosis[§]	—	7	0	8	12	21	16	12	
Q fever total[§,¶¶¶]:	2	60	3	124	171	169	136	70	
acute	1	50	1	110	—	—	—	—	CA (1)
chronic	1	10	0	14	—	—	—	—	NY (1)
Rabies, human	—	1	0	2	1	3	2	7	
Rubella****	—	4	0	16	12	11	11	10	
Rubella, congenital syndrome	—	1	—	—	—	1	1	—	
SARS-CoV[§,††††]	—	—	—	—	—	—	—	—	
Smallpox[§]	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome[§]	1	100	1	157	132	125	129	132	OH (1)
Syphilis, congenital (age <1 yr)	—	123	8	434	430	349	329	353	
Tetanus	—	7	1	19	28	41	27	34	
Toxic-shock syndrome (staphylococcal)[§]	1	56	2	71	92	101	90	95	PA (1)
Trichinellosis	—	12	0	39	5	15	16	5	
Tularemia	3	53	3	123	137	95	154	134	OK (3)
Typhoid fever	7	252	13	449	434	353	324	322	NC (1), FL (1), OK (1), CA (4)
Vancomycin-intermediate *Staphylococcus aureus*[§]	1	54	1	63	37	6	2	—	NY (1)
Vancomycin-resistant *Staphylococcus aureus*[§]	—	—	—	—	2	1	3	1	
Vibriosis (noncholera *Vibrio* species infections)[§]	23	374	10	492	549	N	N	N	MN (1), FL (5), WA (8), CA (9)
Yellow fever	—	—	—	—	—	—	—	—	

See Table I footnotes on next page.

TABLE I. (*Continued*) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending September 19, 2009 (37th)*

—: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts.
* Incidence data for reporting year 2009 is provisional, whereas data for 2004 through 2008 are finalized.
† Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. The total sum of incident cases is then divided by 25 weeks. Additional information is available at http://www.cdc.gov/epo/dphsi/phs/files/5yearweeklyaverage.pdf.
§ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table, except starting in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/epo/dphsi/phs/infdis.htm.
¶ Includes both neuroinvasive and nonneuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for West Nile virus are available in Table II.
** The names of the reporting categories changed in 2008 as a result of revisions to the case definitions. Cases reported prior to 2008 were reported in the categories: Ehrlichiosis, human monocytic (analogous to *E. chaffeensis*); Ehrlichiosis, human granulocytic (analogous to *Anaplasma phagocytophilum*), and Ehrlichiosis, unspecified, or other agent (which included cases unable to be clearly placed in other categories, as well as possible cases of *E. ewingii*).
†† Data for *H. influenzae* (all ages, all serotypes) are available in Table II.
§§ Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Updates of pediatric HIV data have been temporarily suspended until upgrading of the national HIV/AIDS surveillance data management system is completed. Data for HIV/AIDS, when available, are displayed in Table IV, which appears quarterly.
¶¶ Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. A total of 113 influenza-associated pediatric deaths occurring during the 2008–09 influenza season have been reported. Four influenza-associated pediatric death occurring during the 2009–10 influenza season beginning September 1, 2009, has been reported.
*** No measles cases were reported for the current week.
††† Data for meningococcal disease (all serogroups) are available in Table II.
§§§ CDC discontinued reporting of individual confirmed and probable cases of novel influenza A (H1N1) viruses infections on July 24, 2009. CDC will report the total number of novel influenza A (H1N1) hospitalizations and deaths weekly on the CDC H1N1 influenza website (http://www.cdc.gov/h1n1flu).
¶¶¶ In 2008, Q fever acute and chronic reporting categories were recognized as a result of revisions to the Q fever case definition. Prior to that time, case counts were not differentiated with respect to acute and chronic Q fever cases.
**** No rubella cases were reported for the current week.
†††† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals September 19, 2009, with historical data



* No measles cases were reported for the current 4-week period yielding a ratio for week 37 of zero (0).
† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

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TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	Chlamydia†					Coccidiodomycosis					Cryptosporidiosis				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 week Med	Previous 52 week Max	Cum 2009	Cum 2008
United States	12,662	22,489	25,700	794,184	835,505	260	161	472	7,972	4,575	118	123	401	4,503	5,574
New England	647	766	1,655	28,516	26,173	—	0	1	1	1	1	5	30	246	323
Connecticut	224	222	1,306	8,199	7,487	N	0	0	N	N	—	0	23	23	41
Maine§	—	48	75	1,692	1,797	N	0	0	N	N	—	0	4	22	36
Massachusetts	302	344	945	13,970	12,578	N	0	0	N	N	—	2	11	111	139
New Hampshire	—	39	61	1,168	1,470	—	0	1	1	1	—	1	4	45	47
Rhode Island§	93	66	244	2,669	2,028	—	0	0	—	—	—	0	3	4	7
Vermont§	28	22	53	818	813	N	0	0	N	N	1	1	5	41	53
Mid. Atlantic	2,407	2,924	6,734	108,566	103,671	—	0	0	—	—	19	13	30	525	531
New Jersey	—	406	838	14,296	15,896	N	0	0	N	N	—	0	2	8	33
New York (Upstate)	798	579	4,563	22,063	19,309	N	0	0	N	N	12	4	13	157	179
New York City	1,275	1,146	3,130	42,269	39,605	N	0	0	N	N	—	1	8	51	83
Pennsylvania	334	835	1,072	29,938	28,861	N	0	0	N	N	7	7	19	309	236
E.N. Central	1,260	3,484	4,072	119,862	137,130	—	0	4	23	37	9	28	105	969	1,469
Illinois	1	1,090	1,369	36,330	41,469	N	0	0	N	N	—	2	11	99	142
Indiana	328	428	713	16,604	15,270	N	0	0	N	N	—	3	17	129	132
Michigan	878	854	1,332	32,711	32,197	—	0	3	12	28	3	5	13	182	184
Ohio	53	767	1,231	22,434	32,956	—	0	2	11	9	6	9	56	291	450
Wisconsin	—	340	494	11,783	15,238	N	0	0	N	N	—	8	40	268	561
W.N. Central	454	1,317	1,666	45,571	47,332	—	0	1	7	1	11	18	62	716	709
Iowa	—	192	256	6,730	6,246	N	0	0	N	N	3	4	13	158	221
Kansas	—	144	549	5,312	6,506	N	0	0	N	N	—	1	6	61	59
Minnesota	—	257	342	8,342	10,228	—	0	0	—	—	6	4	33	200	152
Missouri	346	509	646	18,506	17,336	—	0	1	7	1	2	3	12	127	128
Nebraska§	38	105	219	3,756	3,709	N	0	0	N	N	—	2	7	71	83
North Dakota	7	24	60	809	1,278	N	0	0	N	N	—	0	10	7	3
South Dakota	63	56	80	2,116	2,029	N	0	0	N	N	—	2	10	92	63
S. Atlantic	2,273	4,082	5,453	139,130	170,793	—	0	1	5	4	32	21	49	746	663
Delaware	86	87	180	3,371	2,559	—	0	1	1	1	—	0	1	6	10
District of Columbia	—	127	226	4,737	4,920	—	0	0	—	—	—	0	2	2	10
Florida	569	1,420	1,597	51,803	50,520	N	0	0	N	N	23	8	23	293	305
Georgia	9	746	1,909	21,473	29,708	N	0	0	N	N	9	6	23	268	170
Maryland§	396	423	772	15,049	16,513	—	0	1	4	3	—	1	5	30	28
North Carolina	—	0	1,193	—	23,829	N	0	0	N	N	—	0	16	58	28
South Carolina§	580	540	1,422	17,710	18,403	N	0	0	N	N	—	1	7	34	38
Virginia§	572	616	926	22,386	22,084	N	0	0	N	N	—	1	6	45	55
West Virginia	61	69	101	2,601	2,257	N	0	0	N	N	—	0	2	10	19
E.S. Central	663	1,738	2,207	63,612	59,743	—	0	0	—	—	4	3	10	141	119
Alabama§	—	474	624	15,693	17,902	N	0	0	N	N	1	1	4	40	53
Kentucky	28	253	458	9,218	8,387	N	0	0	N	N	2	1	4	41	23
Mississippi	—	459	841	16,941	13,928	N	0	0	N	N	—	0	3	11	13
Tennessee§	635	573	809	21,760	19,526	N	0	0	N	N	1	1	5	49	30
W.S. Central	2,430	2,892	5,339	107,194	105,016	—	0	1	1	3	16	11	271	340	1,018
Arkansas§	402	273	417	10,194	10,145	N	0	0	N	N	4	1	10	36	48
Louisiana	183	414	1,134	14,901	15,076	—	0	1	1	3	—	1	6	29	43
Oklahoma	402	174	2,732	10,010	9,560	N	0	0	N	N	2	2	16	87	77
Texas§	1,443	1,986	2,521	72,089	70,235	N	0	0	N	N	10	7	258	188	850
Mountain	777	1,466	2,145	51,036	52,391	218	111	369	6,212	3,077	6	9	22	346	443
Arizona	85	460	735	15,802	17,481	216	109	365	6,135	2,998	—	1	4	25	65
Colorado	356	384	727	12,882	12,437	N	0	0	N	N	5	2	10	109	85
Idaho§	—	67	313	2,437	2,784	N	0	0	N	N	1	1	7	59	45
Montana§	22	56	88	2,079	2,172	N	0	0	N	N	—	0	4	27	38
Nevada§	175	166	456	7,115	6,896	2	1	4	46	43	—	0	4	14	12
New Mexico§	101	179	540	6,182	5,350	—	0	2	9	24	—	2	7	78	151
Utah	38	95	251	3,203	4,226	—	0	2	22	10	—	0	3	19	31
Wyoming§	—	34	97	1,336	1,045	—	0	1	—	2	—	0	2	15	16
Pacific	1,751	3,627	4,685	130,697	133,256	42	41	172	1,723	1,452	20	11	24	474	299
Alaska	—	96	199	3,181	3,350	N	0	0	N	N	—	0	1	5	3
California	1,478	2,802	3,595	101,994	103,699	42	41	172	1,723	1,452	17	6	20	287	177
Hawaii	—	120	247	4,160	4,049	N	0	0	N	N	—	0	1	1	2
Oregon§	—	201	631	6,683	7,048	N	0	0	N	N	3	3	8	128	52
Washington	273	414	571	14,679	15,110	N	0	0	N	N	—	1	6	53	65
American Samoa	—	0	0	—	73	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	3	8	—	107	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	130	332	5,076	5,114	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	9	17	290	486	—	0	0	—	—	—	0	0	—	—

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

	Giardiasis					Gonorrhea					*Haemophilus influenzae*, invasive All ages, all serotypes†				
	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum
Reporting area	week	Med	Max	2009	2008	week	Med	Max	2009	2008	week	Med	Max	2009	2008
United States	233	324	499	11,799	12,586	3,072	5,295	7,135	188,088	236,414	25	60	124	2,195	2,029
New England	6	28	55	960	1,142	126	94	301	3,473	3,687	1	3	16	142	117
Connecticut	—	5	14	162	239	75	46	275	1,607	1,719	—	0	12	42	28
Maine§	—	3	12	127	118	—	2	9	96	69	—	0	2	14	9
Massachusetts	—	11	31	429	483	42	38	112	1,416	1,555	—	2	5	71	57
New Hampshire	1	3	10	114	116	—	2	6	74	77	1	0	2	9	9
Rhode Island§	—	1	8	35	61	7	6	19	248	240	—	0	7	3	6
Vermont§	5	3	15	93	125	2	1	4	32	27	—	0	1	3	8
Mid. Atlantic	53	63	116	2,205	2,284	480	590	1,138	21,783	23,193	6	12	25	444	373
New Jersey	—	7	17	215	368	—	86	122	2,991	3,818	—	2	7	84	63
New York (Upstate)	44	25	81	895	759	149	106	664	4,099	4,344	3	3	20	106	108
New York City	3	15	30	540	597	257	210	577	7,905	7,261	—	2	11	84	66
Pennsylvania	6	15	46	555	560	74	190	267	6,788	7,770	3	4	10	170	136
E.N. Central	31	44	80	1,564	1,889	369	1,076	1,494	37,034	49,119	—	12	28	478	331
Illinois	—	9	23	297	516	—	336	453	11,181	14,494	—	3	9	122	105
Indiana	N	0	11	N	N	130	149	252	5,411	6,205	—	1	22	50	56
Michigan	3	12	22	425	403	212	279	493	10,452	12,031	—	0	3	17	17
Ohio	28	16	27	581	607	27	239	431	6,999	11,881	—	2	6	76	104
Wisconsin	—	8	19	261	363	—	91	140	2,991	4,508	—	3	20	213	49
W.N. Central	7	25	141	1,099	1,447	95	282	393	9,782	11,959	4	3	15	118	149
Iowa	3	6	14	221	226	—	34	53	1,137	1,093	—	0	0	—	2
Kansas	—	2	11	96	117	—	35	83	1,360	1,579	—	0	2	13	17
Minnesota	—	0	104	250	509	—	44	65	1,373	2,230	3	0	10	43	46
Missouri	4	8	29	343	348	79	129	178	4,653	5,732	1	1	4	38	54
Nebraska§	—	3	9	118	143	9	23	54	957	1,010	—	0	4	19	21
North Dakota	—	0	16	9	10	—	2	7	46	84	—	0	4	5	9
South Dakota	—	2	7	62	94	7	7	20	256	231	—	0	0	—	—
S. Atlantic	45	69	109	2,582	2,013	679	1,165	2,042	40,014	60,018	9	13	31	536	519
Delaware	—	0	3	18	29	21	17	37	676	781	—	0	1	3	6
District of Columbia	—	0	5	16	51	—	51	88	1,870	1,809	—	0	2	—	5
Florida	41	36	59	1,359	847	218	418	486	15,101	16,891	3	4	10	181	135
Georgia	—	13	67	661	486	3	247	876	7,284	11,043	—	3	9	116	106
Maryland§	—	5	9	170	189	106	122	212	4,053	4,376	—	1	6	65	75
North Carolina	N	0	0	N	N	—	0	470	—	10,513	4	1	17	61	57
South Carolina§	1	2	8	69	87	180	169	412	5,588	6,758	2	1	5	43	47
Virginia§	3	8	31	257	271	143	147	308	5,072	7,301	—	1	6	42	70
West Virginia	—	1	3	32	53	8	10	23	370	546	—	0	3	25	18
E.S. Central	2	7	20	249	330	186	510	714	18,340	21,643	2	3	9	122	111
Alabama§	1	3	12	120	191	—	141	204	4,432	7,072	1	0	4	28	17
Kentucky	N	0	0	N	N	21	84	135	2,689	3,281	—	0	5	18	6
Mississippi	N	0	0	N	N	—	145	252	5,302	5,075	—	0	1	4	12
Tennessee§	1	4	13	129	139	165	162	273	5,917	6,215	1	2	6	72	76
W.S. Central	7	9	22	313	299	669	857	1,391	31,191	36,145	3	2	22	83	90
Arkansas§	2	2	8	96	96	107	83	134	3,120	3,330	—	0	2	13	11
Louisiana	—	3	8	96	105	51	145	420	4,796	6,521	—	0	1	12	8
Oklahoma	5	4	18	121	98	111	69	613	3,463	3,522	3	1	20	57	64
Texas§	N	0	0	N	N	400	554	725	19,812	22,772	—	0	1	1	7
Mountain	23	27	51	1,024	1,119	111	174	313	5,948	8,259	—	5	11	179	226
Arizona	4	3	10	139	94	16	53	88	1,801	2,451	—	1	7	63	88
Colorado	7	9	26	349	389	34	56	152	1,765	2,548	—	1	6	54	42
Idaho§	3	3	10	125	139	—	2	13	70	126	—	0	1	4	12
Montana§	—	2	10	71	67	—	1	6	51	84	—	0	1	1	3
Nevada§	5	2	10	80	82	29	30	91	1,261	1,620	—	0	2	14	14
New Mexico§	—	1	7	68	84	32	24	52	802	972	—	0	3	17	34
Utah	4	5	15	161	234	—	5	15	146	368	—	1	2	23	30
Wyoming§	—	1	4	31	30	—	1	7	52	90	—	0	1	3	3
Pacific	59	51	130	1,803	2,063	357	549	765	20,523	22,391	—	2	8	93	113
Alaska	—	2	10	71	63	—	15	24	542	375	—	0	3	13	16
California	36	34	57	1,209	1,369	326	466	658	17,292	18,389	—	0	3	22	38
Hawaii	—	0	2	10	34	—	11	22	434	445	—	0	3	22	15
Oregon§	12	7	17	254	333	—	20	48	698	856	—	1	3	33	42
Washington	11	7	74	259	264	31	46	80	1,557	2,326	—	0	2	3	2
American Samoa	—	0	0	—	—	—	0	0	—	3	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	1	15	—	45	—	0	0	—	—
Puerto Rico	—	2	10	63	162	—	3	24	166	208	—	0	1	3	1
U.S. Virgin Islands	—	0	0	—	—	—	2	7	80	96	N	0	0	N	N

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	Hepatitis (viral, acute), by type† A: Current week	A: Previous 52 weeks Med	A: Previous 52 weeks Max	A: Cum 2009	A: Cum 2008	B: Current week	B: Previous 52 weeks Med	B: Previous 52 weeks Max	B: Cum 2009	B: Cum 2008	Legionellosis: Current week	Legionellosis: Previous 52 weeks Med	Legionellosis: Previous 52 weeks Max	Legionellosis: Cum 2009	Legionellosis: Cum 2008
United States	21	36	89	1,299	1,899	37	64	197	2,185	2,683	48	51	127	1,982	2,116
New England	—	2	8	67	92	—	1	4	27	60	1	3	18	104	137
Connecticut	—	0	4	17	18	—	0	3	10	23	—	1	5	42	27
Maine§	—	0	5	1	5	—	0	2	8	10	—	0	2	4	6
Massachusetts	—	1	3	39	47	—	0	2	6	16	—	1	6	40	58
New Hampshire	—	0	1	5	10	—	0	2	3	5	—	0	2	8	24
Rhode Island§	—	0	2	3	10	—	0	0	—	4	—	0	14	4	17
Vermont§	—	0	1	2	2	—	0	1	—	2	1	0	1	6	5
Mid. Atlantic	2	5	13	175	223	5	7	17	223	318	20	15	67	785	700
New Jersey	—	1	5	33	58	—	1	6	54	93	—	2	14	119	88
New York (Upstate)	—	1	4	37	44	2	1	11	40	44	16	5	29	261	218
New York City	—	2	6	58	75	—	1	4	42	72	—	2	20	142	98
Pennsylvania	2	1	4	47	46	3	3	8	87	109	4	6	25	263	296
E.N. Central	1	5	17	178	254	2	8	21	269	366	8	9	27	353	468
Illinois	—	1	12	77	94	—	1	6	36	141	—	1	8	26	70
Indiana	—	0	3	12	14	—	1	18	46	24	—	1	5	25	39
Michigan	—	1	5	49	92	—	2	8	94	103	2	2	10	91	128
Ohio	1	1	4	31	29	2	1	13	69	84	6	4	17	206	203
Wisconsin	—	0	3	9	25	—	0	4	24	14	—	0	3	5	28
W.N. Central	2	2	16	89	208	—	3	16	119	58	1	2	7	66	98
Iowa	—	0	2	25	100	—	1	3	24	14	—	0	2	16	15
Kansas	—	0	1	7	14	—	0	2	5	6	—	0	1	3	1
Minnesota	—	0	12	14	26	—	0	11	20	7	—	0	3	8	9
Missouri	2	0	3	22	25	—	1	5	56	25	1	1	5	29	54
Nebraska§	—	0	3	19	39	—	0	2	13	5	—	0	2	8	17
North Dakota	—	0	2	—	—	—	0	1	—	1	—	0	3	1	—
South Dakota	—	0	1	2	4	—	0	1	1	—	—	0	1	1	2
S. Atlantic	11	7	14	294	287	16	18	32	652	653	9	9	20	333	344
Delaware	—	0	1	3	6	U	0	1	U	U	—	0	5	11	9
District of Columbia	U	0	0	U	U	U	0	0	U	U	—	0	2	4	12
Florida	9	4	8	141	106	6	6	11	219	231	7	3	7	121	100
Georgia	1	1	3	45	40	2	3	9	105	124	1	1	5	34	29
Maryland§	—	0	4	28	33	—	1	5	47	58	—	2	10	77	99
North Carolina	—	0	4	25	48	5	2	19	135	51	—	0	6	39	23
South Carolina§	—	0	3	27	12	—	1	4	35	52	—	0	1	6	9
Virginia§	1	0	3	24	37	2	1	10	62	78	1	1	5	35	39
West Virginia	—	0	1	1	5	1	0	19	49	59	—	0	2	6	24
E.S. Central	—	1	3	30	63	5	7	11	220	280	3	2	11	87	91
Alabama§	—	0	2	7	9	2	2	7	65	82	—	0	2	8	13
Kentucky	—	0	1	7	23	—	2	7	58	67	2	1	3	39	43
Mississippi	—	0	1	8	4	—	1	2	18	33	—	0	1	3	1
Tennessee§	—	0	2	8	27	3	2	6	79	98	1	1	8	37	34
W.S. Central	—	3	43	103	180	4	10	99	338	528	1	1	21	45	59
Arkansas§	—	0	1	4	6	—	1	5	37	42	1	0	2	4	10
Louisiana	—	0	1	3	10	—	1	4	33	67	—	0	2	4	8
Oklahoma	—	0	6	3	7	4	2	17	75	78	—	0	6	3	3
Texas§	—	3	37	93	157	—	6	76	193	341	—	1	19	34	38
Mountain	2	3	7	116	170	2	3	7	96	146	1	2	8	77	61
Arizona	1	2	6	56	86	—	1	4	36	56	—	1	4	35	14
Colorado	—	0	5	34	31	—	0	2	16	25	1	0	2	8	7
Idaho§	—	0	1	3	16	—	0	2	7	7	—	0	1	1	3
Montana§	—	0	1	5	1	—	0	0	—	2	—	0	2	4	4
Nevada§	1	0	3	8	7	2	0	3	24	31	—	0	2	10	9
New Mexico§	—	0	1	6	15	—	0	2	5	8	—	0	2	2	6
Utah	—	0	1	4	11	—	0	1	5	12	—	0	4	16	18
Wyoming§	—	0	0	—	3	—	0	2	3	5	—	0	1	1	—
Pacific	3	7	17	247	422	3	6	36	241	274	4	3	12	132	158
Alaska	—	0	1	3	3	—	0	1	2	9	—	0	1	1	1
California	3	5	17	196	342	3	5	28	178	190	3	3	9	105	122
Hawaii	—	0	1	5	16	—	0	1	4	6	—	0	1	1	6
Oregon§	—	0	2	12	23	—	0	4	26	33	1	0	2	10	14
Washington	—	1	4	31	38	—	1	8	31	36	—	0	4	15	15
American Samoa	—	0	0	—	—	—	0	0	—	—	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	2	17	20	—	0	3	12	44	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	Lyme disease					Malaria					Meningococcal disease, invasive† All groups				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	247	480	1,637	19,847	24,672	11	23	46	804	852	6	17	48	632	884
New England	1	90	327	3,378	9,161	—	1	5	30	43	—	0	4	21	24
Connecticut	—	0	105	—	3,163	—	0	4	5	10	—	0	1	2	1
Maine§	—	8	73	467	361	—	0	1	1	1	—	0	1	3	4
Massachusetts	—	28	213	1,881	3,895	—	0	3	19	23	—	0	3	12	16
New Hampshire	—	13	72	765	1,325	—	0	1	2	3	—	0	1	1	2
Rhode Island§	—	0	78	54	119	—	0	1	1	2	—	0	1	2	1
Vermont§	1	4	36	211	298	—	0	1	2	4	—	0	1	1	—
Mid. Atlantic	205	240	1,401	11,970	9,936	1	5	17	187	234	—	2	5	71	96
New Jersey	—	35	264	2,629	2,893	—	0	3	—	56	—	0	2	8	13
New York (Upstate)	105	86	1,368	3,069	3,355	1	1	10	37	25	—	0	2	18	25
New York City	—	4	24	148	617	—	3	11	111	123	—	0	2	12	19
Pennsylvania	100	53	618	6,124	3,071	—	1	4	39	30	—	1	4	33	39
E.N. Central	2	19	179	1,555	1,941	—	3	8	111	117	2	3	8	103	153
Illinois	—	1	11	83	98	—	1	4	46	62	—	1	6	27	55
Indiana	—	1	4	33	33	—	0	3	12	5	—	0	3	24	22
Michigan	—	1	11	76	64	—	0	3	18	13	—	0	5	18	26
Ohio	2	1	3	36	34	—	1	6	31	22	2	0	3	28	32
Wisconsin	—	14	165	1,327	1,712	—	0	1	4	15	—	0	1	6	18
W.N. Central	—	5	336	172	532	—	1	7	41	51	—	1	9	50	77
Iowa	—	1	12	72	92	—	0	2	9	8	—	0	1	6	16
Kansas	—	0	4	15	7	—	0	2	4	5	—	0	2	8	4
Minnesota	—	0	326	67	418	—	0	7	13	20	—	0	4	10	21
Missouri	—	0	2	4	4	—	0	2	9	10	—	0	3	18	23
Nebraska§	—	0	3	13	8	—	0	1	5	8	—	0	1	5	10
North Dakota	—	0	10	—	—	—	0	0	—	—	—	0	3	1	1
South Dakota	—	0	1	1	3	—	0	1	1	—	—	0	1	2	2
S. Atlantic	30	63	207	2,523	2,857	6	6	17	247	210	1	2	9	114	126
Delaware	3	12	63	746	620	—	0	1	4	2	—	0	1	2	1
District of Columbia	—	0	5	18	54	—	0	2	5	2	—	0	0	—	—
Florida	8	1	9	63	50	6	2	7	75	37	—	1	4	41	45
Georgia	—	0	6	39	31	—	1	5	54	46	1	0	2	22	14
Maryland§	—	27	130	1,140	1,416	—	1	8	52	55	—	0	1	7	13
North Carolina	—	1	14	56	16	—	0	5	21	22	—	0	5	18	11
South Carolina§	—	0	3	19	18	—	0	1	2	8	—	0	1	10	20
Virginia§	19	11	61	342	544	—	1	4	32	36	—	0	2	9	17
West Virginia	—	0	27	100	108	—	0	1	2	2	—	0	2	5	5
E.S. Central	1	0	2	20	39	—	1	3	24	13	—	0	3	21	40
Alabama§	—	0	1	2	9	—	0	3	7	3	—	0	1	5	5
Kentucky	—	0	1	1	4	—	0	2	8	4	—	0	1	4	7
Mississippi	—	0	0	—	1	—	0	1	1	1	—	0	1	2	9
Tennessee§	1	0	2	17	25	—	0	3	8	5	—	0	1	10	19
W.S. Central	—	1	21	37	78	—	1	8	34	57	2	1	12	60	95
Arkansas§	—	0	0	—	—	—	0	1	3	—	—	0	2	5	13
Louisiana	—	0	0	—	3	—	0	1	3	3	—	0	3	11	19
Oklahoma	—	0	2	—	—	—	0	2	2	2	2	0	3	8	12
Texas§	—	1	21	37	75	—	1	7	26	52	—	1	9	36	51
Mountain	—	1	13	37	45	—	0	5	24	22	—	1	4	50	47
Arizona	—	0	2	4	8	—	0	2	7	10	—	0	2	13	6
Colorado	—	0	1	4	3	—	0	3	8	3	—	0	2	16	9
Idaho§	—	0	2	9	7	—	0	1	1	1	—	0	1	5	4
Montana§	—	0	13	2	4	—	0	3	4	—	—	0	2	4	4
Nevada§	—	0	2	12	11	—	0	1	—	4	—	0	2	4	7
New Mexico§	—	0	1	1	8	—	0	1	—	2	—	0	1	3	8
Utah	—	0	1	4	2	—	0	2	4	2	—	0	1	1	7
Wyoming§	—	0	1	1	2	—	0	0	—	—	—	0	2	4	2
Pacific	8	4	13	155	83	4	3	10	106	105	1	3	14	142	226
Alaska	—	0	1	2	5	—	0	1	2	4	—	0	2	5	6
California	7	3	11	133	44	3	2	8	80	75	1	2	8	95	167
Hawaii	N	0	0	N	N	—	0	1	1	2	—	0	1	3	4
Oregon§	—	0	3	12	27	—	0	2	9	4	—	0	6	26	26
Washington	1	0	12	8	7	1	0	3	14	20	—	0	6	13	23
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	2	—	1	—	0	0	—	—
Puerto Rico	N	0	0	N	N	—	0	1	2	2	—	0	1	—	2
U.S. Virgin Islands	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	Pertussis					Rabies, animal					Rocky Mountain spotted fever				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	114	279	1,697	9,309	6,523	111	68	138	2,658	3,117	8	29	179	1,061	1,707
New England	—	14	27	437	735	1	7	14	226	293	—	0	2	9	4
Connecticut	—	1	4	31	42	—	3	10	101	146	—	0	0	—	—
Maine†	—	1	10	64	26	—	1	5	36	36	—	0	2	4	1
Massachusetts	—	8	21	266	570	—	0	0	—	—	—	0	1	4	1
New Hampshire	—	1	7	57	23	—	0	7	24	31	—	0	0	—	1
Rhode Island†	—	0	5	11	63	—	0	3	27	26	—	0	2	—	1
Vermont†	—	0	1	8	11	1	1	4	38	54	—	0	1	1	—
Mid. Atlantic	13	22	64	794	774	8	14	27	447	676	—	1	29	54	107
New Jersey	—	3	12	128	162	—	0	0	—	—	—	0	2	—	73
New York (Upstate)	10	5	41	155	293	8	8	20	328	366	—	0	29	10	12
New York City	—	0	21	53	50	—	0	2	1	14	—	0	4	24	11
Pennsylvania	3	12	33	458	269	—	4	17	118	296	—	0	2	20	11
E.N. Central	52	54	238	1,922	1,081	9	2	19	197	205	—	1	6	62	127
Illinois	—	11	45	284	229	3	1	9	80	85	—	1	6	39	94
Indiana	—	4	158	181	42	—	0	6	17	7	—	0	3	4	6
Michigan	15	11	30	522	175	4	1	6	57	66	—	0	2	5	3
Ohio	37	20	57	829	526	2	0	7	43	47	—	0	4	14	24
Wisconsin	—	3	12	106	109	N	0	0	N	N	—	0	0	—	—
W.N. Central	1	35	872	1,304	538	4	5	17	214	230	3	4	26	237	367
Iowa	—	6	21	139	84	—	0	5	24	17	—	0	2	4	7
Kansas	—	4	12	143	42	—	1	6	60	52	—	0	1	2	—
Minnesota	—	0	808	165	156	1	0	11	45	44	—	0	1	2	—
Missouri	1	20	51	706	171	3	1	5	54	51	3	4	25	218	341
Nebraska†	—	4	32	110	62	—	0	1	—	31	—	0	2	11	16
North Dakota	—	0	24	17	1	—	0	9	4	17	—	0	1	—	—
South Dakota	—	0	10	24	22	—	0	4	27	18	—	0	0	—	3
S. Atlantic	27	28	71	1,174	643	84	25	111	1,215	1,279	2	13	42	379	589
Delaware	—	0	2	10	11	—	0	0	—	—	—	0	3	16	26
District of Columbia	—	0	2	2	4	—	0	0	—	—	—	0	0	—	6
Florida	16	9	32	426	194	—	0	95	131	138	—	0	2	5	9
Georgia	1	3	11	115	63	72	0	71	334	290	—	0	6	37	68
Maryland†	—	2	9	78	93	—	7	14	264	328	—	1	3	27	71
North Carolina	9	0	65	213	79	N	2	4	N	N	2	6	36	227	263
South Carolina†	—	4	17	175	86	—	0	0	—	—	—	0	9	16	31
Virginia†	1	3	24	131	105	10	11	23	399	456	—	2	9	47	107
West Virginia	—	0	5	24	8	2	2	6	87	67	—	0	1	4	8
E.S. Central	3	15	33	573	228	—	2	7	71	140	3	4	19	193	249
Alabama†	1	4	19	219	30	—	0	0	—	—	3	1	6	46	67
Kentucky	—	6	15	178	59	—	1	4	37	35	—	0	1	1	1
Mississippi	—	1	4	41	78	—	0	2	—	2	—	0	1	7	10
Tennessee†	2	3	14	135	61	—	0	4	34	103	—	3	15	139	171
W.S. Central	—	56	389	1,872	1,031	—	0	13	45	75	—	1	161	106	225
Arkansas†	—	4	38	176	68	—	0	5	23	41	—	0	61	47	44
Louisiana	—	2	8	90	64	—	0	0	—	—	—	0	1	2	5
Oklahoma	—	0	45	37	32	—	0	13	21	32	—	0	98	44	142
Texas†	—	46	304	1,569	867	—	0	1	1	2	—	0	6	13	34
Mountain	6	17	31	638	623	—	1	9	57	73	—	0	3	19	36
Arizona	—	3	10	152	172	N	0	0	N	N	—	0	2	4	10
Colorado	5	5	12	205	116	—	0	0	—	—	—	0	0	—	1
Idaho†	1	1	5	60	24	—	0	2	—	9	—	0	1	1	1
Montana†	—	0	4	12	76	—	0	4	16	8	—	0	2	8	3
Nevada†	—	0	3	10	26	—	0	1	4	10	—	0	1	1	2
New Mexico†	—	1	10	39	33	—	0	2	16	24	—	0	1	1	4
Utah	—	4	19	152	163	—	0	6	4	7	—	0	1	1	5
Wyoming†	—	0	5	8	13	—	0	4	17	15	—	0	1	3	10
Pacific	12	18	98	595	870	5	5	12	186	146	—	0	1	2	3
Alaska	—	1	21	33	118	—	0	2	11	12	N	0	0	N	N
California	—	5	19	143	394	5	4	12	160	127	—	0	1	2	—
Hawaii	1	0	3	23	10	—	0	0	—	—	N	0	0	N	N
Oregon†	1	3	16	186	130	—	0	3	15	7	—	0	0	—	3
Washington	10	6	76	210	218	—	0	0	—	—	—	0	0	—	—
American Samoa	—	0	0	—	—	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	N	0	0	N	N
Puerto Rico	—	0	1	1	—	1	0	3	28	47	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N	N	0	0	N	N

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U: Unavailable. —: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2009 is provisional.
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

	Salmonellosis					Shiga toxin-producing *E. coli* (STEC)†					Shigellosis				
Reporting area	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	762	907	2,323	29,893	32,838	71	86	255	2,804	3,470	165	313	1,268	10,584	13,838
New England	1	32	324	1,522	1,739	—	3	50	159	184	—	3	33	239	185
Connecticut	—	0	298	298	491	—	0	50	50	47	—	0	28	28	40
Maine§	—	2	7	83	107	—	0	3	14	15	—	0	1	2	18
Massachusetts	—	22	38	805	887	—	1	6	58	86	—	3	27	183	110
New Hampshire	—	3	42	206	111	—	1	3	24	15	—	0	4	13	4
Rhode Island§	—	2	11	87	73	—	0	1	—	7	—	0	1	8	10
Vermont§	1	1	5	43	70	—	0	6	13	14	—	0	2	5	3
Mid. Atlantic	50	87	182	3,203	4,129	5	7	19	247	352	24	56	79	2,030	1,752
New Jersey	—	9	32	237	982	—	1	5	31	104	—	13	35	416	604
New York (Upstate)	40	24	66	937	949	4	3	9	100	118	6	5	23	166	457
New York City	3	19	49	813	928	—	1	5	39	39	—	9	23	308	552
Pennsylvania	7	29	66	1,216	1,270	1	1	6	77	91	18	24	61	1,140	139
E.N. Central	32	91	142	3,340	3,711	3	12	74	437	562	8	62	132	1,885	2,691
Illinois	—	26	50	892	1,087	—	1	10	66	96	—	12	25	384	749
Indiana	—	7	50	245	426	—	1	6	39	71	—	1	21	38	504
Michigan	3	18	29	688	697	—	3	43	106	98	1	5	24	167	92
Ohio	29	28	52	1,085	929	3	3	15	104	132	7	35	80	940	1,049
Wisconsin	—	11	29	430	572	—	3	10	122	165	—	10	42	356	297
W.N. Central	38	51	109	1,969	2,099	4	12	39	531	606	22	16	49	662	672
Iowa	8	7	15	313	324	2	3	14	131	158	—	2	12	49	117
Kansas	—	7	18	270	346	—	1	7	33	35	—	3	11	159	32
Minnesota	6	13	51	458	530	1	2	18	155	124	1	2	14	64	234
Missouri	24	12	29	460	576	1	2	10	86	124	21	4	40	364	176
Nebraska§	—	5	41	272	178	—	1	6	66	126	—	0	3	19	5
North Dakota	—	0	30	40	31	—	0	28	3	1	—	0	9	3	33
South Dakota	—	3	22	156	114	—	0	12	57	38	—	0	1	4	75
S. Atlantic	336	262	440	8,188	8,026	8	12	30	446	614	24	46	85	1,626	2,289
Delaware	1	2	8	80	115	—	0	2	11	10	—	1	8	76	7
District of Columbia	—	0	5	20	49	—	0	1	1	6	—	0	2	6	16
Florida	229	115	197	3,912	3,258	6	3	7	120	103	13	9	24	326	630
Georgia	59	39	96	1,542	1,576	—	1	4	52	69	6	13	30	469	833
Maryland§	—	15	26	502	615	—	1	6	60	103	—	6	14	257	73
North Carolina	10	22	104	788	795	—	2	21	74	71	2	5	27	253	139
South Carolina§	14	15	54	530	757	—	0	3	21	32	1	3	14	90	433
Virginia§	23	20	88	655	707	2	3	16	88	188	2	5	59	143	130
West Virginia	—	4	23	159	154	—	0	3	19	32	—	0	3	6	28
E.S. Central	24	56	124	1,924	2,382	9	4	12	160	201	5	18	58	586	1,392
Alabama§	5	15	38	467	679	—	1	4	36	49	1	3	11	99	330
Kentucky	9	10	18	351	320	2	1	7	55	66	2	2	25	145	210
Mississippi	1	14	47	578	806	—	0	1	6	4	—	1	4	32	277
Tennessee§	9	14	62	528	577	7	2	5	63	82	2	11	48	310	575
W.S. Central	89	110	1,333	3,185	4,558	4	4	139	125	253	33	55	967	1,850	3,035
Arkansas§	24	12	34	435	541	—	0	4	26	42	7	8	20	243	402
Louisiana	—	14	43	599	795	—	0	1	—	7	—	4	17	108	508
Oklahoma	20	14	102	457	542	—	1	82	21	22	11	5	61	208	103
Texas§	45	56	1,204	1,694	2,680	4	2	55	78	182	15	41	889	1,291	2,022
Mountain	42	57	121	2,122	2,423	15	10	40	364	407	27	24	54	856	691
Arizona	15	20	47	743	767	—	1	4	55	51	16	17	42	636	335
Colorado	17	13	34	488	532	10	2	18	114	118	6	2	11	73	76
Idaho§	2	3	10	135	128	1	2	15	60	82	1	0	2	8	10
Montana§	—	2	7	73	87	—	0	3	15	29	—	0	5	13	6
Nevada§	5	4	13	185	171	2	0	4	22	14	4	1	11	52	162
New Mexico§	1	5	26	228	430	—	1	2	23	42	—	2	12	59	73
Utah	2	6	15	227	252	2	2	7	70	61	—	0	3	15	26
Wyoming§	—	1	6	43	56	—	0	2	5	10	—	0	1	—	3
Pacific	150	126	537	4,440	3,771	23	10	31	335	291	22	27	75	850	1,131
Alaska	—	1	6	56	42	—	0	1	—	5	—	0	1	2	1
California	99	95	516	3,355	2,735	4	5	15	169	136	19	20	65	686	981
Hawaii	2	5	13	184	197	—	0	1	3	11	—	0	4	27	35
Oregon§	6	8	15	296	327	—	1	6	47	51	—	1	10	29	55
Washington	43	12	85	549	470	19	3	16	116	88	3	3	11	106	59
American Samoa	—	0	1	—	2	—	0	0	—	—	—	1	2	3	1
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	2	—	11	—	0	0	—	—	—	0	1	—	14
Puerto Rico	2	8	40	251	521	—	0	1	1	—	—	0	2	7	24
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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U: Unavailable. —: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2009 is provisional.
† Includes *E. coli* O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin-positive, not serogrouped.
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	Streptococcal diseases, invasive, group A					*Streptococcus pneumoniae,* invasive disease, nondrug resistant† Age <5 years				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	35	101	239	3,928	4,211	11	36	122	1,205	1,260
New England	—	5	28	229	301	—	1	12	43	61
Connecticut	—	0	21	63	86	—	0	11	—	—
Maine§	—	0	2	13	20	—	0	1	3	1
Massachusetts	—	3	10	97	140	—	1	4	30	45
New Hampshire	—	1	4	34	20	—	0	2	8	8
Rhode Island§	—	0	2	9	22	—	0	2	—	7
Vermont§	—	0	3	13	13	—	0	1	2	—
Mid. Atlantic	1	19	43	788	861	1	5	33	182	158
New Jersey	—	3	6	104	155	—	1	4	31	47
New York (Upstate)	—	7	25	262	270	—	2	17	85	69
New York City	—	4	12	150	158	1	0	31	66	42
Pennsylvania	1	6	18	272	278	N	0	2	N	N
E.N. Central	1	17	42	742	798	2	6	18	182	228
Illinois	—	5	12	207	212	—	1	5	23	64
Indiana	—	3	23	119	106	—	0	13	26	26
Michigan	—	3	11	121	139	1	1	5	49	58
Ohio	1	4	13	186	219	1	1	6	54	42
Wisconsin	—	2	11	109	122	—	1	4	30	38
W.N. Central	1	6	37	321	314	1	2	11	108	68
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	—	1	5	37	32	N	0	1	N	N
Minnesota	—	0	34	146	150	1	0	10	61	19
Missouri	—	2	8	71	74	—	0	4	29	30
Nebraska§	—	1	3	35	31	—	0	1	8	7
North Dakota	—	0	4	11	8	—	0	3	4	6
South Dakota	1	0	3	21	19	—	0	2	6	6
S. Atlantic	10	22	48	897	862	4	6	16	226	246
Delaware	—	0	1	10	6	—	0	0	—	—
District of Columbia	—	0	3	11	12	N	0	0	N	N
Florida	4	6	12	221	196	1	1	6	53	46
Georgia	3	5	13	213	190	2	2	6	58	67
Maryland§	—	3	12	140	148	—	1	4	51	46
North Carolina	2	2	12	83	110	N	0	0	N	N
South Carolina§	—	1	5	57	55	1	1	6	34	43
Virginia§	1	3	9	128	112	—	0	4	18	38
West Virginia	—	1	4	34	33	—	0	3	12	6
E.S. Central	2	3	10	151	149	—	2	7	66	65
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	1	1	5	29	32	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	2	14	8
Tennessee§	1	3	9	122	117	—	1	6	52	57
W.S. Central	19	9	79	343	380	1	6	46	204	198
Arkansas§	—	0	2	14	8	1	0	4	22	11
Louisiana	—	0	3	11	15	—	0	3	13	11
Oklahoma	3	3	20	111	88	—	1	7	43	49
Texas§	16	5	59	207	269	—	3	34	126	127
Mountain	1	10	22	341	435	2	4	16	171	198
Arizona	—	3	7	116	152	2	2	10	90	91
Colorado	—	3	9	111	111	—	1	4	32	45
Idaho§	1	0	2	8	12	—	0	2	7	3
Montana§	N	0	0	N	N	N	0	0	N	N
Nevada§	—	0	1	5	8	—	0	1	—	3
New Mexico§	—	2	7	59	103	—	0	4	15	27
Utah	—	1	6	41	43	—	0	5	27	28
Wyoming§	—	0	1	1	6	—	0	1	—	1
Pacific	—	3	9	116	111	—	0	4	23	38
Alaska	—	1	3	22	28	—	0	3	17	24
California	N	0	0	N	N	N	0	0	N	N
Hawaii	—	3	8	94	83	—	0	2	6	14
Oregon§	N	0	0	N	N	N	0	0	N	N
Washington	N	0	0	N	N	N	0	0	N	N
American Samoa	—	0	0	—	30	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

Reporting area	*Streptococcus pneumoniae*, invasive disease, drug resistant† — All ages					*Streptococcus pneumoniae*, invasive disease, drug resistant† — Aged <5 years					Syphilis, primary and secondary				
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2009	Cum 2008
United States	16	60	276	2,031	2,264	—	9	21	313	348	135	264	452	9,274	9,035
New England	—	1	48	35	53	—	0	5	3	7	4	5	15	233	222
Connecticut	—	0	48	—	7	—	0	5	—	—	1	1	5	43	23
Maine§	—	0	2	9	15	—	0	1	1	1	—	0	1	1	9
Massachusetts	—	0	1	3	—	—	0	1	2	—	3	4	11	164	156
New Hampshire	—	0	3	5	—	—	0	0	—	—	—	0	2	13	13
Rhode Island§	—	0	6	7	18	—	0	1	—	4	—	0	5	12	14
Vermont§	—	0	2	11	13	—	0	0	—	2	—	0	2	—	7
Mid. Atlantic	3	3	14	121	231	—	0	3	20	21	31	35	51	1,315	1,183
New Jersey	—	0	0	—	—	—	0	0	—	—	—	4	13	157	155
New York (Upstate)	2	1	10	54	48	—	0	2	10	6	2	2	8	88	96
New York City	—	0	4	3	93	—	0	2	—	1	23	23	40	825	740
Pennsylvania	1	1	8	64	90	—	0	2	10	14	6	6	12	245	192
E.N. Central	3	11	41	456	479	—	1	7	64	64	7	23	44	769	838
Illinois	N	0	0	N	N	N	0	0	N	N	—	8	19	223	340
Indiana	—	3	32	162	164	—	0	6	22	20	1	2	10	120	102
Michigan	—	0	2	19	17	—	0	1	2	2	5	4	18	180	130
Ohio	3	7	18	275	298	—	1	4	40	42	1	6	17	215	225
Wisconsin	—	0	0	—	—	—	0	0	—	—	—	1	4	31	41
W.N. Central	—	2	161	95	159	—	0	3	20	32	—	6	11	218	304
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	2	17	14
Kansas	—	1	5	39	59	—	0	2	13	4	—	0	3	22	24
Minnesota	—	0	156	—	23	—	0	3	—	23	—	1	6	40	77
Missouri	—	1	5	44	69	—	0	1	5	2	—	3	7	121	179
Nebraska§	—	0	0	—	—	—	0	0	—	—	—	0	3	14	10
North Dakota	—	0	3	10	2	—	0	0	—	—	—	0	1	3	—
South Dakota	—	0	2	2	6	—	0	2	2	3	—	0	1	1	—
S. Atlantic	6	26	53	965	929	—	4	14	144	153	24	64	262	2,298	1,975
Delaware	—	0	2	15	3	—	0	0	—	—	—	0	3	23	10
District of Columbia	N	0	0	N	N	N	0	0	N	N	—	3	9	120	95
Florida	4	15	36	563	527	—	2	13	89	98	1	20	32	697	735
Georgia	1	8	25	295	313	—	1	5	48	47	—	14	227	541	444
Maryland§	—	0	1	4	4	—	0	0	—	1	3	6	16	221	244
North Carolina	N	0	0	N	N	N	0	0	N	N	17	9	21	382	194
South Carolina§	—	0	0	—	—	—	0	0	—	—	3	2	6	86	62
Virginia§	N	0	0	N	N	N	0	0	N	N	—	7	15	224	183
West Virginia	1	2	13	88	82	—	0	3	7	7	—	0	2	4	8
E.S. Central	2	5	25	198	240	—	1	3	29	45	4	22	36	789	771
Alabama§	N	0	0	N	N	N	0	0	N	N	—	8	17	288	319
Kentucky	1	1	5	56	59	—	0	2	7	10	—	1	10	47	61
Mississippi	—	0	3	3	29	—	0	1	2	8	—	4	18	158	109
Tennessee§	1	3	23	139	152	—	0	3	20	27	4	8	19	296	282
W.S. Central	2	1	6	74	76	—	0	3	14	12	41	48	80	1,751	1,542
Arkansas§	2	1	5	42	13	—	0	3	9	3	14	4	35	167	113
Louisiana	—	1	5	32	63	—	0	1	5	9	—	11	40	303	425
Oklahoma	N	0	0	N	N	N	0	0	N	N	2	1	7	45	56
Texas§	—	0	0	—	—	—	0	0	—	—	25	32	50	1,236	948
Mountain	—	2	7	84	95	—	0	3	17	12	13	9	18	314	454
Arizona	—	0	0	—	—	—	0	0	—	—	—	4	9	132	232
Colorado	—	0	0	—	—	—	0	0	—	—	—	1	4	64	109
Idaho§	N	0	1	N	N	N	0	1	N	N	—	0	2	3	3
Montana§	—	0	1	—	—	—	0	0	—	—	—	0	7	—	—
Nevada§	—	1	4	33	44	—	0	2	7	5	10	1	7	76	60
New Mexico§	—	0	0	—	—	—	0	0	—	—	3	1	5	37	31
Utah	—	1	6	42	50	—	0	3	9	7	—	0	2	—	16
Wyoming§	—	0	2	9	1	—	0	1	1	—	—	0	1	2	3
Pacific	—	0	1	3	2	—	0	1	2	2	11	44	67	1,587	1,746
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	0	—	1
California	N	0	0	N	N	N	0	0	N	N	8	40	60	1,447	1,579
Hawaii	—	0	1	3	2	—	0	1	2	2	—	0	3	21	16
Oregon§	N	0	0	N	N	N	0	0	N	N	—	1	4	32	13
Washington	N	0	0	N	N	N	0	0	N	N	3	2	7	87	137
American Samoa	N	0	0	N	N	N	0	0	N	N	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—	—	3	16	142	108
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2009 is provisional.
† Includes cases of invasive pneumococcal disease caused by drug-resistant *S. pneumoniae* (DRSP) (NNDSS event code 11720).
§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 2009, and September 13, 2008 (37th)*

	Varicella (chickenpox)					West Nile virus disease†									
						Neuroinvasive					Nonneuroinvasive§				
	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum	Current	Previous 52 weeks		Cum	Cum
Reporting area	week	Med	Max	2009	2008	week	Med	Max	2009	2008	week	Med	Max	2009	2008
United States	101	455	1,035	12,879	21,268	—	1	43	178	550	—	0	34	166	575
New England	—	8	46	199	1,193	—	0	1	—	5	—	0	0	—	3
Connecticut	—	0	21	—	617	—	0	0	—	5	—	0	0	—	3
Maine¶	—	0	11	5	178	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	2	2	—	—	0	1	—	—	—	0	0	—	—
New Hampshire	—	4	11	145	191	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	1	4	—	—	0	1	—	—	—	0	0	—	—
Vermont¶	—	2	17	43	207	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	19	39	58	1,090	1,684	—	0	6	2	36	—	0	2	1	17
New Jersey	N	0	0	N	N	—	0	2	—	2	—	0	0	—	4
New York (Upstate)	N	0	0	N	N	—	0	3	1	17	—	0	1	—	6
New York City	—	0	0	—	—	—	0	0	—	8	—	0	1	—	5
Pennsylvania	19	39	58	1,090	1,684	—	0	1	1	9	—	0	1	1	2
E.N. Central	34	161	254	4,583	5,143	—	0	6	3	30	—	0	3	3	17
Illinois	5	38	73	1,126	783	—	0	4	1	6	—	0	0	—	8
Indiana	—	2	24	250	—	—	0	1	2	2	—	0	1	1	1
Michigan	9	48	90	1,342	2,127	—	0	1	—	9	—	0	1	—	4
Ohio	20	42	91	1,475	1,643	—	0	2	—	11	—	0	2	2	—
Wisconsin	—	13	55	390	590	—	0	2	—	2	—	0	0	—	4
W.N. Central	13	21	114	705	882	—	0	3	12	41	—	0	5	32	118
Iowa	N	0	0	N	N	—	0	0	—	3	—	0	1	2	2
Kansas	—	5	22	183	330	—	0	2	—	10	—	0	2	4	13
Minnesota	—	0	0	—	—	—	0	0	—	2	—	0	1	1	8
Missouri	13	10	51	465	516	—	0	2	1	8	—	0	0	—	3
Nebraska¶	N	0	0	N	N	—	0	2	6	5	—	0	3	15	31
North Dakota	—	0	108	57	—	—	0	0	—	2	—	0	1	1	35
South Dakota	—	0	4	—	36	—	0	3	5	11	—	0	2	9	26
S. Atlantic	20	56	146	1,472	3,495	—	0	2	5	17	—	0	3	—	16
Delaware	—	0	4	8	32	—	0	0	—	—	—	0	0	—	1
District of Columbia	—	0	3	8	18	—	0	0	—	4	—	0	1	—	2
Florida	9	28	67	947	1,217	—	0	0	—	3	—	0	0	—	—
Georgia	N	0	0	N	N	—	0	1	2	3	—	0	0	—	4
Maryland¶	N	0	0	N	N	—	0	2	—	4	—	0	2	—	6
North Carolina	N	0	0	N	N	—	0	0	—	2	—	0	0	—	1
South Carolina¶	—	2	54	154	637	—	0	2	3	—	—	0	0	—	1
Virginia¶	—	0	119	28	1,060	—	0	0	—	—	—	0	0	—	1
West Virginia	11	9	32	327	531	—	0	0	—	1	—	0	0	—	—
E.S. Central	—	11	28	358	899	—	0	5	25	42	—	0	5	15	50
Alabama¶	—	11	28	356	888	—	0	0	—	11	—	0	2	—	5
Kentucky	N	0	0	N	N	—	0	1	2	1	—	0	0	—	—
Mississippi	—	0	1	2	11	—	0	5	22	19	—	0	4	14	38
Tennessee¶	N	0	0	N	N	—	0	1	1	11	—	0	1	1	7
W.S. Central	—	97	747	3,421	6,321	—	0	12	56	58	—	0	5	17	48
Arkansas¶	—	2	47	96	528	—	0	1	1	6	—	0	0	—	2
Louisiana	—	1	7	76	58	—	0	3	7	13	—	0	5	6	19
Oklahoma	N	0	0	N	N	—	0	1	4	2	—	0	0	—	5
Texas¶	—	88	721	3,249	5,735	—	0	10	44	37	—	0	3	11	22
Mountain	15	32	83	971	1,557	—	0	8	41	74	—	0	12	61	163
Arizona	—	0	0	—	—	—	0	5	11	39	—	0	7	4	35
Colorado	15	12	44	403	637	—	0	4	13	15	—	0	11	38	53
Idaho¶	N	0	0	N	N	—	0	1	2	3	—	0	2	6	34
Montana¶	—	2	20	105	233	—	0	1	2	—	—	0	1	1	5
Nevada¶	N	0	0	N	N	—	0	2	7	8	—	0	1	5	7
New Mexico¶	—	2	20	134	171	—	0	2	4	4	—	0	1	2	2
Utah	—	12	31	329	506	—	0	1	—	5	—	0	1	—	19
Wyoming¶	—	0	1	—	10	—	0	1	2	—	—	0	2	5	8
Pacific	—	2	7	80	94	—	0	19	34	247	—	0	10	37	143
Alaska	—	1	6	50	46	—	0	0	—	—	—	0	0	—	—
California	—	0	0	—	—	—	0	19	25	242	—	0	10	22	129
Hawaii	—	1	4	30	48	—	0	0	—	—	—	0	0	—	—
Oregon¶	N	0	0	N	N	—	0	1	1	3	—	0	3	6	13
Washington	N	0	0	N	N	—	0	3	8	2	—	0	4	9	1
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	2	3	—	55	—	0	0	—	—	—	0	0	—	—
Puerto Rico	13	7	23	332	450	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Incidence data for reporting year 2009 is provisional. Data for HIV/AIDS, AIDS, and TB, when available, are displayed in Table IV, which appears quarterly.
† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for California serogroup, eastern equine, Powassan, St. Louis, and western equine diseases are available in Table I.
§ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table, except starting in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/epo/dphsi/phs/infdis.htm.
¶ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE III. Deaths in 122 U.S. cities,* week ending September 19, 2009 (37th)

Reporting area	All causes, by age (years) All Ages	≥65	45–64	25–44	1–24	<1	P&I† Total
New England	507	352	109	27	13	6	36
Boston, MA	144	89	38	8	6	3	9
Bridgeport, CT	26	20	6	—	—	—	2
Cambridge, MA	15	12	2	1	—	—	2
Fall River, MA	20	15	3	1	—	1	—
Hartford, CT	51	32	15	4	—	—	4
Lowell, MA	25	17	6	1	1	—	3
Lynn, MA	11	7	3	1	—	—	1
New Bedford, MA	22	20	1	1	—	—	1
New Haven, CT	22	17	3	—	2	—	3
Providence, RI	57	38	15	2	2	—	6
Somerville, MA	2	1	—	1	—	—	—
Springfield, MA	22	16	4	1	—	1	1
Waterbury, CT	30	20	6	2	2	—	2
Worcester, MA	60	48	7	4	—	1	2
Mid. Atlantic	2,119	1,456	481	106	38	37	92
Albany, NY	52	33	9	3	1	6	—
Allentown, PA	24	18	5	1	—	—	—
Buffalo, NY	61	41	17	2	1	—	1
Camden, NJ	19	9	3	2	2	3	1
Elizabeth, NJ	16	11	3	1	—	1	—
Erie, PA	54	45	5	4	—	—	7
Jersey City, NJ	29	18	9	2	—	—	1
New York City, NY	1,020	704	236	48	19	12	51
Newark, NJ	40	22	14	3	—	1	4
Paterson, NJ	5	5	—	—	—	—	—
Philadelphia, PA	396	250	104	24	9	9	4
Pittsburgh, PA§	50	30	13	6	—	1	3
Reading, PA	39	31	6	1	—	1	—
Rochester, NY	132	95	26	5	3	3	10
Schenectady, NY	26	22	2	2	—	—	1
Scranton, PA	22	18	3	1	—	—	2
Syracuse, NY	80	61	18	—	1	—	5
Trenton, NJ	18	13	4	—	1	—	—
Utica, NY	24	21	3	—	—	—	2
Yonkers, NY	12	9	1	1	1	—	—
E.N. Central	1,727	1,126	405	97	36	63	99
Akron, OH	44	28	11	2	1	2	3
Canton, OH	40	34	5	—	—	1	3
Chicago, IL	U	U	U	U	U	U	U
Cincinnati, OH	84	49	18	6	3	8	6
Cleveland, OH	211	140	51	14	3	3	10
Columbus, OH	229	137	56	18	5	13	12
Dayton, OH	135	98	28	5	1	3	8
Detroit, MI	161	84	46	15	6	10	7
Evansville, IN	51	30	21	—	—	—	4
Fort Wayne, IN	68	44	15	5	2	2	1
Gary, IN	13	5	6	2	—	—	—
Grand Rapids, MI	50	37	7	4	1	1	5
Indianapolis, IN	188	118	53	8	4	5	11
Lansing, MI	34	26	5	2	1	—	1
Milwaukee, WI	104	67	28	3	2	4	6
Peoria, IL	43	29	4	5	1	4	2
Rockford, IL	56	41	13	—	1	1	6
South Bend, IN	56	38	8	4	4	2	4
Toledo, OH	98	68	23	3	1	3	6
Youngstown, OH	62	53	7	1	—	1	4
W.N. Central	623	387	159	45	14	17	35
Des Moines, IA	63	44	13	3	1	2	6
Duluth, MN	34	24	8	2	—	—	3
Kansas City, KS	30	15	14	1	—	—	3
Kansas City, MO	82	50	18	5	4	5	6
Lincoln, NE	33	30	3	—	—	—	1
Minneapolis, MN	54	34	15	3	2	—	2
Omaha, NE	105	64	23	13	3	2	5
St. Louis, MO	80	41	26	7	3	3	5
St. Paul, MN	65	37	22	2	—	4	2
Wichita, KS	77	48	17	9	1	1	2
S. Atlantic	1,289	783	341	95	38	32	72
Atlanta, GA	179	97	56	14	11	1	7
Baltimore, MD	136	64	50	13	2	7	12
Charlotte, NC	119	71	29	9	5	5	12
Jacksonville, FL	153	94	38	17	1	3	4
Miami, FL	62	42	15	4	1	—	5
Norfolk, VA	48	33	7	4	2	2	—
Richmond, VA	65	37	20	2	4	2	3
Savannah, GA	63	47	9	2	2	3	2
St. Petersburg, FL	53	37	10	3	1	2	8
Tampa, FL	228	151	52	17	4	4	14
Washington, D.C.	168	102	51	8	5	2	4
Wilmington, DE	15	8	4	2	—	1	1
E.S. Central	802	507	202	65	21	7	69
Birmingham, AL	170	99	52	15	3	1	7
Chattanooga, TN	53	39	8	4	2	—	5
Knoxville, TN	102	67	24	6	4	1	12
Lexington, KY	54	39	12	2	1	—	8
Memphis, TN	190	118	45	21	5	1	23
Mobile, AL	73	53	14	4	1	1	3
Montgomery, AL	34	22	6	4	1	1	2
Nashville, TN	126	70	41	9	4	2	9
W.S. Central	1,434	865	383	109	50	27	66
Austin, TX	73	48	19	3	1	2	4
Baton Rouge, LA	73	46	15	10	—	2	—
Corpus Christi, TX	58	32	21	3	1	1	3
Dallas, TX	202	104	66	18	11	3	10
El Paso, TX	103	72	27	3	1	—	3
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	399	228	107	36	17	11	19
Little Rock, AR	72	39	23	7	3	—	3
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	224	150	58	5	8	3	17
Shreveport, LA	71	43	14	7	2	5	3
Tulsa, OK	159	103	33	17	6	—	4
Mountain	1,122	706	284	84	22	26	58
Albuquerque, NM	136	99	24	9	2	2	12
Boise, ID	51	30	15	2	1	3	2
Colorado Springs, CO	101	57	30	6	4	4	2
Denver, CO	79	38	28	6	3	4	3
Las Vegas, NV	286	183	73	25	5	—	16
Ogden, UT	36	29	6	1	—	—	5
Phoenix, AZ	157	76	58	17	—	6	6
Pueblo, CO	26	15	6	1	4	—	1
Salt Lake City, UT	92	69	11	5	3	4	6
Tucson, AZ	158	110	33	12	—	3	5
Pacific	1,627	1,093	385	90	38	21	156
Berkeley, CA	13	9	4	—	—	—	3
Fresno, CA	113	67	37	7	1	1	8
Glendale, CA	25	18	6	1	—	—	5
Honolulu, HI	68	48	14	2	3	1	6
Long Beach, CA	U	U	U	U	U	U	U
Los Angeles, CA	243	171	49	9	11	3	42
Pasadena, CA	22	16	4	2	—	—	2
Portland, OR	97	61	25	7	1	3	10
Sacramento, CA	163	112	38	8	4	1	16
San Diego, CA	240	154	62	16	7	1	18
San Francisco, CA	109	66	29	7	4	3	11
San Jose, CA	222	167	41	8	2	4	18
Santa Cruz, CA	30	20	6	4	—	—	1
Seattle, WA	122	76	28	12	3	3	9
Spokane, WA	57	41	15	—	—	1	4
Tacoma, WA	103	67	27	7	2	—	3
Total¶	**11,250**	**7,275**	**2,749**	**718**	**270**	**236**	**683**

U: Unavailable. —:No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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