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2009 Pandemic Influenza A (H1N1) Virus Infections — Chicago, Illinois, April–July 2009

On April 21, 2009, CDC reported the first cases of 2009 pandemic influenza A (H1N1) virus* infection in the United States (1). On April 24, in response to those reports, the Chicago Department of Public Health (CDPH) established enhanced surveillance for 2009 pandemic influenza A (H1N1) virus infections. The first cases were identified on April 28. This report summarizes laboratory-confirmed cases identified during April 24–July 25 and provides clinical and epidemiologic data for a subset of those cases. By July 25, a total of 1,557 laboratory-confirmed cases had been reported to CDPH. The overall attack rate was highest among children aged 5–14 years (147 per 100,000 population), which was 14 times higher than for adults aged ≥ 60 years. A total of 205 (13%) patients were hospitalized, with the highest rate observed among children aged 0–4 years (25 per 100,000), followed by children aged 5–14 years (11 per 100,000). These findings affirm prevention strategies that target children and young adults, who are at a disproportionate risk for infection and hospitalization. The Advisory Committee on Immunization Practices (ACIP) recommends that these populations should be among the first groups targeted for vaccination with influenza A (H1N1) 2009 monovalent vaccine (2).

On April 24, CDPH issued a citywide health alert to physicians and infection control professionals recommending influenza testing for persons with influenza-like illness (ILI) who had traveled to Mexico or affected counties in California and Texas, or had been in contact with ill persons from these areas in the 7 days before their illness onset. Infection with the 2009 pandemic influenza A (H1N1) virus is a reportable disease in Illinois, and health-care providers and hospitals were instructed to report suspected cases to CDPH. A probable case was defined as ILI in a person with a positive result

by real-time reverse transcription–polymerase chain reaction (rRT-PCR) for influenza A and a negative result for seasonal H1 and H3 influenza (i.e., unsubtypeable for seasonal influenza A). A confirmed case was defined as a probable case that additionally had a positive result for the 2009 H1N1 virus by rRT-PCR. The Illinois Department of Public Health (IDPH) Division of Laboratories served as the reference laboratory for novel influenza testing for the entire state, including Chicago. In addition, four Chicago-area laboratories serving local hospitals were equipped, as a result of prior pandemic influenza preparedness efforts, to perform rRT-PCR to detect influenza A viruses.

On April 26, CDPH and other city departments held their first press conference regarding the outbreak and recommended home isolation for persons with ILI. On April 28, CDPH received the first four reports of probable 2009 pandemic influenza A (H1N1) virus infection among Chicago residents, which included two health-care workers from the same medical facility, an office worker, and an elementary school student; all four specimens were later confirmed to be the 2009 H1N1 virus at CDC and IDPH laboratories.†

† Nearly all cases reported initially to CDPH as probable (i.e., unsubtypeable influenza A) were later laboratory confirmed to be 2009 pandemic influenza A (H1N1); therefore, all cases contained in this report refer to confirmed cases only.

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* Previously referred to in *MMWR* reports as the novel influenza A (H1N1) virus.

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On April 30, CDPH issued an alert advising health-care providers to limit testing for 2009 pandemic influenza A (H1N1) virus to hospitalized ILI patients because large numbers of respiratory specimens had been sent to IDPH for confirmatory testing. This excess had been created when emergency departments and outpatient clinics in Chicago and the surrounding suburbs evaluated large volumes of patients with mild illness who sought care after local and national media coverage.

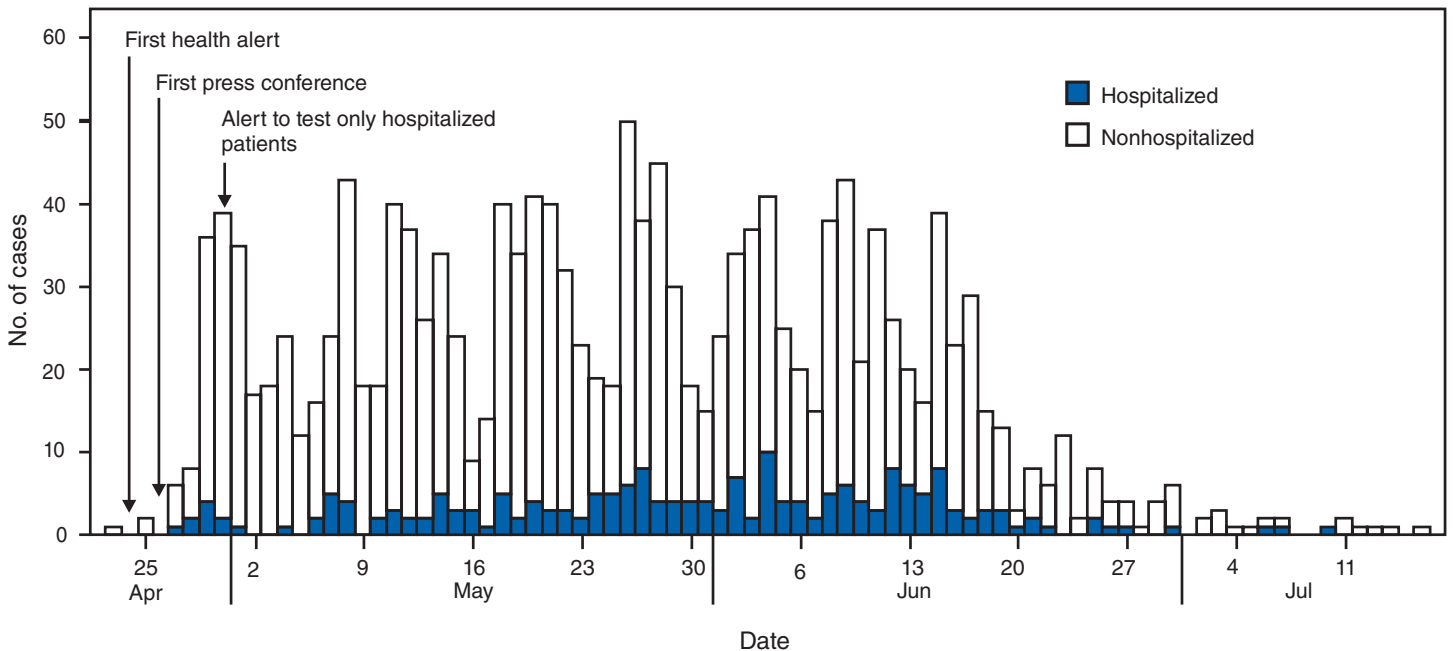
During April 24–May 15, CDPH conducted telephone interviews with all persons reported as having confirmed or probable cases. A standardized case report form was used to record demographic, clinical, and exposure information. After May 15, because of widespread community transmission, interviews were discontinued. Subsequently, the principal source of information about nonhospitalized cases was demographic data included on IDPH laboratory reports.

From April 24 to July 25, a total of 1,557 laboratory-confirmed 2009 pandemic influenza A (H1N1) virus infection cases among Chicago residents were reported to CDPH with specimen collection dates of April 23 to July 16 (Figure 1). Although an initial cluster was identified in one northeastern community area during the first week of the outbreak, cases soon were reported among residents of multiple community areas throughout the city (Figure 2). By May 23, the fifth week of the outbreak, cases had been reported in 68 of Chicago's 77 community areas.

During April 24–July 25, the median age of reported confirmed cases was 12 years (range: 24 days–91 years). The attack rate was highest among children aged 5–14 years (147 per 100,000 population), followed by children aged 0–4 years (113 per 100,000). The attack rate for children aged 5–14 years was 14 times higher than for adults aged ≥ 60 years (Table). Attack rates for males and females were similar. Among 433 patients for whom the data were available, the most common symptoms were fever (315 patients; 73%) and cough (295; 68%), followed by sore throat (124; 29%) and shortness of breath (64; 15%); no information about vomiting or diarrhea was collected.

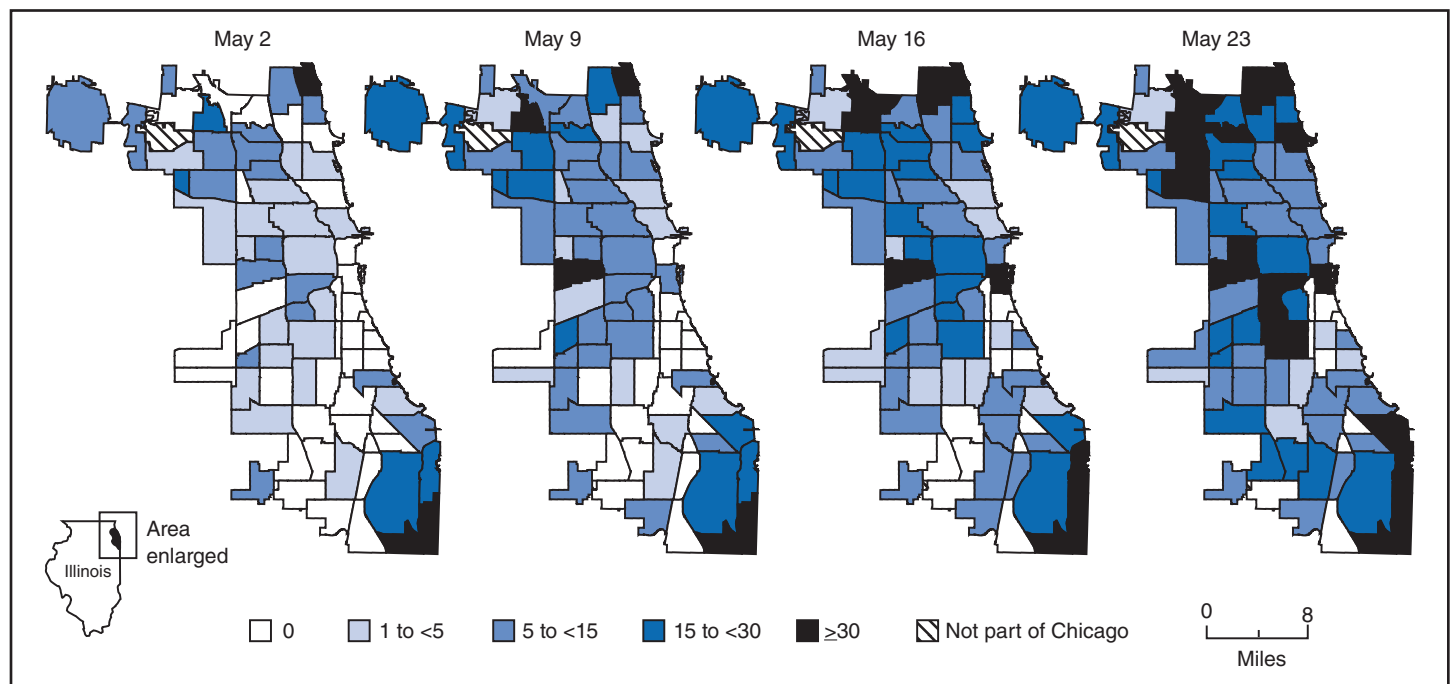
Of the 205 laboratory-confirmed patients who were admitted to the hospital; the median age was 16 years (range: 24 days–91 years). By age group, the hospitalization rate was highest among children aged 0–4 years (25 per 100,000), followed by children aged 5–14 years (11 per 100,000). Race/ethnicity data were more complete for hospitalized patients (90%) than nonhospitalized patients (40%). Hospitalization rates were higher for non-Hispanic blacks (nine per 100,000), Asian/Pacific Islanders (eight per 100,000), and Hispanics (eight per 100,000) versus non-Hispanic whites (two per 100,000), a pattern that persisted even when cases were limited to only those patients ≤ 14 years. Within each of these four racial/ethnic

FIGURE 1. Laboratory-confirmed cases (n = 1,536)* of 2009 pandemic influenza A (H1N1) virus infection, by specimen collection date — Chicago, Illinois, April–July 2009



* Among 1,557 confirmed cases, 21 were missing specimen collection dates.

FIGURE 2. Cumulative rates per 100,000 population of laboratory-confirmed cases of 2009 pandemic influenza A (H1N1) virus infection, by specimen collection date and community area* — Chicago, Illinois, April–May 2009



* Chicago is divided into 77 community areas, which are used to collect census and demographic data. Boundaries of the community areas have been revised only slightly since the 1920s.

TABLE. Number, percentage, and rate of laboratory-confirmed cases of 2009 pandemic influenza A (H1N1) virus infection, by patient age group, sex, and race/ethnicity — Chicago, Illinois, April–July, 2009

Characteristic	2000 population*	Nonhospitalized (n = 1,352)			Hospitalized (n = 205)			Total (N = 1,557)		
		No.	(%)	Rate†	No.	(%)	Rate	No.	(%)	Rate
Age group (yrs)										
0–4	218,522	193	(14)	88	54	(26)	25	247	(16)	113
5–14	424,814	577	(43)	136	47	(23)	11	624	(40)	147
15–29	720,772	318	(24)	44	29	(14)	4	347	(22)	48
30–59	1,133,348	219	(16)	19	59	(29)	5	278	(18)	25
≥60	398,560	25	(2)	6	16	(8)	4	41	(3)	10
Unknown		20	(1)	—§	0	(0)	—	20	(1)	—
Sex										
Female	1,490,909	669	(49)	45	108	(53)	7	777	(50)	52
Male	1,405,107	568	(42)	40	97	(47)	7	665	(43)	47
Unknown		115	(9)	—	0	(0)	—	115	(7)	—
Race/Ethnicity and age groups (yrs)										
Black, non-Hispanic										
Total	1,053,739	215	(16)	20	93	(45)	9	308	(20)	29
0–14	281,007	121	(56)	45	46	(49)	16	167	(54)	59
≥15	772,732	93	(43)	12	47	(51)	6	140	(46)	18
Unknown		1	(0)	—	0	(0)	—	1	(0)	—
White, non-Hispanic										
Total	907,166	82	(6)	9	17	(8)	2	99	(6)	11
0–14	102,960	28	(34)	27	5	(29)	5	33	(33)	32
≥15	804,206	53	(65)	7	12	(71)	1	65	(66)	8
Unknown		1	(1)	—	0	(0)	—	1	(1)	—
Hispanic										
Total	753,644	207	(15)	27	64	(31)	8	271	(17)	36
0–14	226,255	140	(68)	62	33	(52)	15	173	(64)	76
≥15	527,389	67	(32)	13	31	(48)	6	98	(36)	19
Unknown		0	(0)	—	0	(0)	—	0	(0)	—
Asian/Pacific Islander										
Total	125,409	37	(3)	30	10	(5)	8	47	(3)	37
0–14	19,459	23	(62)	118	6	(60)	31	29	(62)	149
≥15	105,950	13	(35)	12	4	(40)	4	17	(36)	16
Unknown		1	(3)	—	0	(0)	—	1	(2)	—
Unknown race/ethnicity										
		811	(60)	—	21	(10)	—	832	(53)	—

* U.S. Census Bureau. Census 2000 summary file 1 data. Available at <http://www.census.gov/Press-Release/www/2001/sumfile1.html>.

† Per 100,000 population.

§ Not applicable.

populations, hospitalization rates were higher among children aged 0–14 years than among patients aged ≥15 years.

Among the 205 hospitalized patients, 40 (20%) patients were admitted to an intensive-care unit, and nine were reported to have required mechanical ventilation. The duration of hospitalization ranged from 1 day to 11 days (median: 2 days) for the 97 surviving patients who had both admission and discharge dates reported. Among hospitalized patients, 14 (7%) were pregnant women, including a woman aged 20 years who died of respiratory failure a day after giving birth by emergency cesarean section (3). Among 177 hospitalized patients with information on underlying illness, 37 (21%) had a previous diagnosis of asthma noted and 13 (7%) had a previous diagnosis of diabetes noted.

As of August 24, seven deaths attributed to 2009 pandemic influenza A (H1N1) virus infection among Chicago residents

had been reported, including the pregnant woman, a woman aged 54 years with acute myeloid leukemia, a man aged 22 years with renal disease requiring chronic hemodialysis, a man aged 32 years with asthma and obesity, a man aged 52 years with lymphoma, and two women with no reported chronic health conditions, one aged 26 years and one aged 47 years. Investigation of these deaths is ongoing; however, respiratory compromise was a factor in all of the deaths.

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Editorial Note: During the 14-week period covered by this report, 1,557 confirmed cases of 2009 pandemic influenza A (H1N1) virus infection were reported to CDPH. The highest attack rates, both overall and among hospitalized patients, were among children aged 0–4 years and aged 5–14 years, with substantially lower rates in persons ≥ 15 years. Previous reports have indicated that age-specific attack rates for 2009 pandemic influenza A (H1N1) virus infection cases are higher in younger persons and lower in older persons, compared with seasonal influenza infections (4,5). Older persons, as a group, might have preexisting immunity to the 2009 H1N1 virus (6). One small study indicated that approximately one third of adults aged >60 years had cross-reactive antibody to 2009 pandemic influenza A (H1N1) virus detected, compared with none detected among children (7). Another factor might be higher contact rates among teenagers (8).

In Chicago, Hispanics, non-Hispanic blacks, and Asian/Pacific Islanders had higher reported rates of hospitalization for 2009 pandemic influenza A (H1N1) virus infection than did non-Hispanic whites. The cause for these higher rates is unknown and could not be explained entirely by differences in the age distribution of these populations. These differences are likely the result of variations in exposure rather than differences in susceptibility. However, underlying conditions, such as asthma and diabetes, are more prevalent among blacks and Hispanics in Chicago, which might explain some of the difference in rates among hospitalized cases (9,10).

The number of cases reported in Chicago likely represents in part the high public and health-care provider awareness of the outbreak, and also the establishment of enhanced hospital laboratory surveillance. To raise awareness about the outbreak, CDPH sent 21 health alert messages via its health alert network (a secure, web-based communication portal) to physicians, infection control professionals, laboratorians, and emergency department personnel and hosted four press conferences. These messages might have played a role in increasing case findings early in the outbreak, before more limited testing recommendations were issued. The additional molecular laboratory capacity provided by the four area laboratories serving Chicago hospitals might have allowed more patients to be tested, resulting in increased numbers of cases confirmed in Chicago.

Despite the CDPH recommendation to limit testing, large numbers of outpatients continued to be tested. This might have occurred because the CDPH health alert network does not have extensive reach to community health-care providers, and these providers might not have known about the limited testing recommendation right away. CDPH also does not have a means by which to limit specimen submission from

hospitals and community health-care providers to the IDPH laboratory. By mid-June, case reports declined substantially; the exact reason for this is unknown but could be related to the end of the school year.

The findings in this report are subject to at least one limitation. The number of cases in Chicago was likely underestimated because many infected persons might not have sought medical attention and because testing was discouraged for outpatients after April 30. Accordingly, the proportion of confirmed cases that resulted in hospitalization might be overestimated because the true denominator of 2009 pandemic influenza A (H1N1) virus infection cases in the city might be higher than the number of confirmed cases contained in this report. However, the rate of hospitalization was likely less affected because surveillance for hospitalized cases was uniform throughout the period.

Because of the high attacks rate of 2009 pandemic influenza A (H1N1) virus infection among children and young adults, CDPH intends to focus on infection prevention, vaccination, surveillance, and diagnostic and education strategies in this population. CDPH is strengthening absenteeism monitoring among schools and promoting home isolation for students with ILI. Health-care providers who care for children will be a priority group for CDPH communications, in addition to other groups recommended by ACIP (2).

Enhanced molecular laboratory capacity will be critical for distinguishing 2009 pandemic influenza A (H1N1) virus from other circulating influenza viruses. Additional hospital laboratories in Chicago are initiating rRT-PCR testing to characterize influenza strains in the fall. Each week, CDPH will collect reports of influenza-positive results by strain type from PCR-equipped laboratories and aggregate ILI data from hospital emergency departments to track the onset and extent of ILI in the city. In addition, CDPH will continue surveillance of hospitalized influenza A cases to monitor influenza morbidity.

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Surveillance for the 2009 Pandemic Influenza A (H1N1) Virus and Seasonal Influenza Viruses – New Zealand, 2009

The 2009 pandemic influenza A (H1N1) virus,* which was first identified in the United States (1) and Mexico (2), was imported into New Zealand by a high school group returning from Mexico in late April 2009. By June, sustained community transmission of the virus had been established in New Zealand. To track the incidence of influenza-like illness (ILI) and compare the number of viruses identified as 2009 pandemic influenza A (H1N1) with the number identified as seasonal influenza, New Zealand public health officials analyzed weekly data from the country's sentinel general practitioner (GP) surveillance system and nonsentinel laboratory surveillance network for the period extending from the week ending May 3 through the week ending August 2. This report describes the results of those analyses, which determined that the number of viruses identified as 2009 pandemic influenza A (H1N1) rapidly overtook the number identified as seasonal influenza, and the peak weekly consultation rate for ILI was three times the peak rate in New Zealand during the same period in 2008. These findings demonstrate the value of using integrated epidemiologic and virologic surveillance in New Zealand to monitor the scope of an influenza epidemic, identify circulating strains, assist public health control measures, and guide effective use of influenza vaccines and antivirals.

GP Sentinel Influenza Surveillance

The New Zealand sentinel GP surveillance system was established in 1991 as part of the World Health Organization (WHO) global program for influenza surveillance; the system is

operated nationally by the Institute of Environmental Science and Research (ESR) and locally by surveillance coordinators in the public health units of the country's 24 health districts. Surveillance is conducted during May–September (the southern hemisphere winter) by volunteer sentinel GPs distributed across New Zealand. The sentinel system defines a case of ILI as an acute respiratory tract infection characterized by an abrupt onset of at least two of the following: fever, chills, headache, and myalgia. Each participating GP records the daily number of patients consulted for ILI, along with the patient's age. These data are collected by local district coordinators each week. National ILI consultation rates are calculated weekly using the sum of the GP patient populations as the denominator.

The national level of ILI activity is described using a set of threshold values. A weekly consultation rate <50 consultations per 100,000 patient population is described as baseline activity. A weekly rate of 50–249 is considered indicative of normal seasonal influenza activity. Within the normal seasonal activity, 50–99 is low activity, 100–149 is moderate, and 150–249 is high activity. A rate of 250–399 indicates higher than expected influenza activity and ≥400 indicates an epidemic level of influenza activity. Because age group–specific GP patient population data are not provided by participating GPs, the denominator for age group–specific ILI consultation rates is based on New Zealand census data with the assumption that the age group distribution for GP patient populations is the same as the distribution for the entire New Zealand population.

Each participating GP also collects three respiratory samples (i.e., nasopharyngeal or throat swab) each week from the first ILI patient examined on Monday, Tuesday, and Wednesday. The GPs forward these samples to the WHO National Influenza Centre at ESR or to hospital virology laboratories in Auckland, Waikato, or Christchurch for virus characterization. Laboratory identification methods include molecular detection by polymerase chain reaction, isolation of the virus, or direct detection of viral antigen. Influenza viruses are typed and subtyped as influenza A, B, seasonal A, seasonal A (H1N1), seasonal A (H3N2), or 2009 pandemic influenza A (H1N1). The virus identification data are forwarded by hospital laboratories to ESR each week. ESR compiles and reports national epidemiologic and virologic data on influenza to WHO and also publishes these data on the ESR website.†

For the 2009 influenza season, 95 sentinel GPs were recruited, representing all of the country's 24 health districts and with a combined patient population of 409,044, approximately 9.6% of the New Zealand population. During the study period, the weeks ending May 3 through August 2, a total of

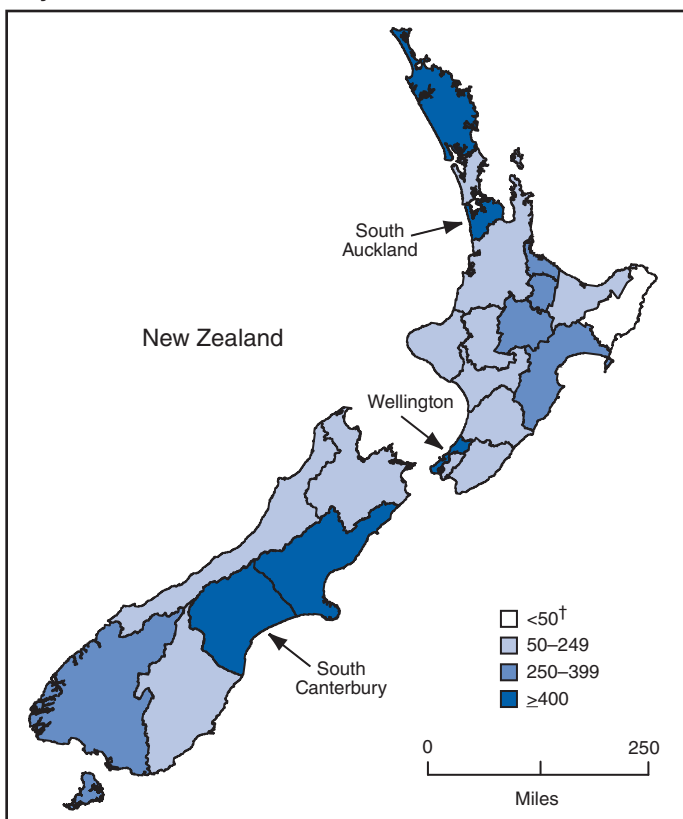
* Previously referred to in *MMWR* reports as the novel influenza A (H1N1) virus.

† Available at http://www.surv.esr.cri.nz/virology/influenza_weekly_update.php.

6,280 consultations for ILI were reported from the 24 health districts. Cumulative incidence of ILI consultation during this period was 1,518 per 100,000 patient population. As in previous years, 2009 consultation rates for ILI varied greatly among health districts. During July 6–12, a week of high influenza activity, multiple health districts reported ≥ 400 ILI consultations per 100,000 patient population, which is indicative of epidemic activity. Among those health districts with epidemic activity, South Auckland had the highest consultation rate (1,308 per 100,000), followed by Wellington (709) and South Canterbury (505) (Figure 1).

Weekly national ILI consultation rates for the study period were compared with the same period in 2008 and 2007. From the week ending May 3 through the week ending June 7, the weekly ILI consultation rate remained below the baseline level of 50 consultations per 100,000 patient population (Figure 2).

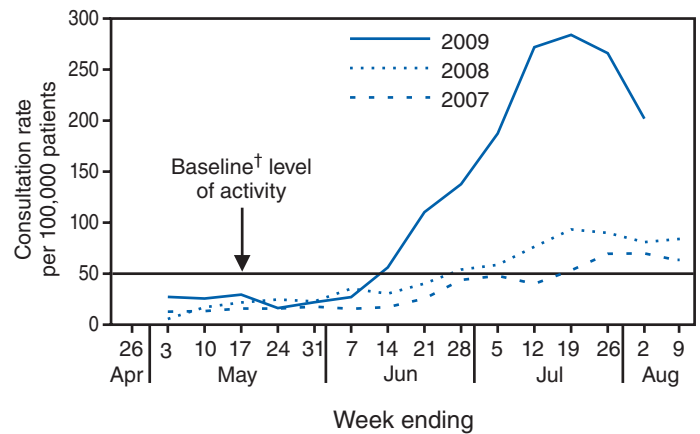
FIGURE 1. Consultation rates per 100,000 patient population for influenza-like illness (ILI), by health district — sentinel general practitioner surveillance system,* New Zealand, July 6–12, 2009



* 95 general practitioners, representing all 24 health districts, with a combined patient population of 409,044, approximately 9.6% of the New Zealand population.

† A weekly rate < 50 ILI consultations per 100,000 patient population is considered baseline activity. A rate of 50–249 is considered indicative of normal seasonal influenza activity, and a rate of 250–399 indicative of higher than expected influenza activity. A rate ≥ 400 ILI consultations per 100,000 patient population indicates an epidemic level of influenza activity.

FIGURE 2. National consultation rates for influenza-like illness (ILI) compared with 2008 and 2007, by week — sentinel general practitioner surveillance system,* New Zealand, week ending May 3 through week ending August 2, 2009



* 95 general practitioners, representing all 24 health districts, with a combined patient population of 409,044, approximately 9.6% of the New Zealand population.

† A weekly rate < 50 ILI consultations per 100,000 patient population is considered baseline activity.

The ILI rate first exceeded the baseline level in the second week of June and increased sharply from the week ending June 21 to the week ending July 12. The ILI consultation rate peaked at 287 consultations per 100,000 patient population in the week ending July 19, approximately three times the peak rate of 95 consultations recorded in 2008.

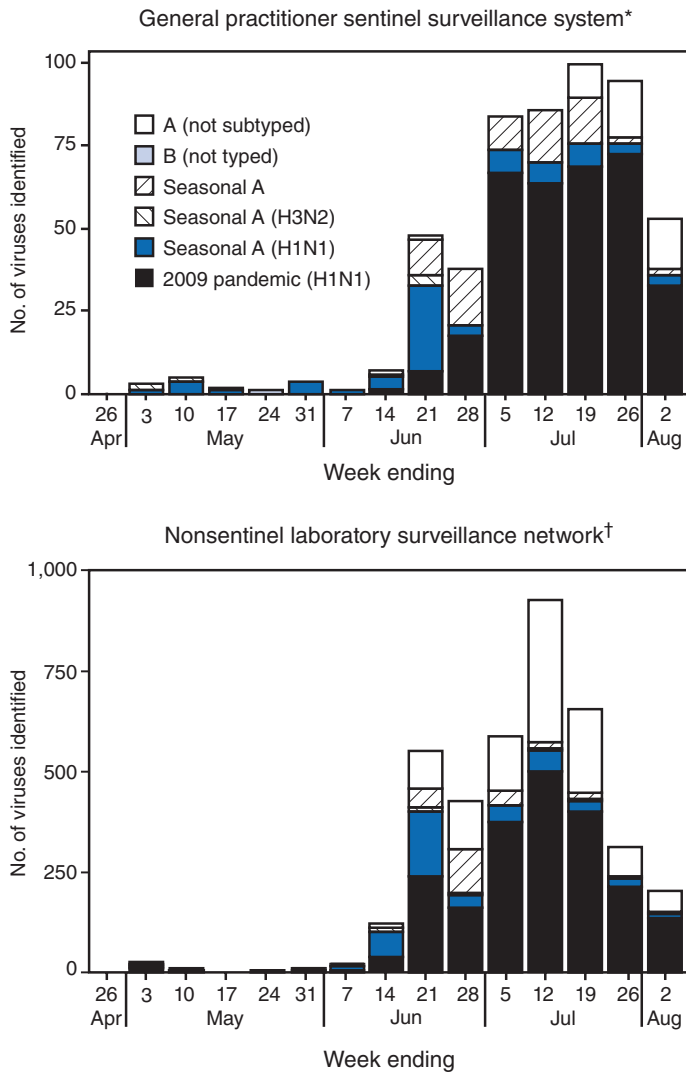
During the study period, the highest ILI consultation rates were recorded among children and youths aged ≤ 19 years. Children aged 1–4 years had the highest ILI consultation rate (154 per 100,000 age group population), followed by infants aged < 1 year (110 per 100,000), and persons aged 5–19 years (97), 20–34 years (96), 35–49 years (66), 50–64 years (57) and ≥ 65 years (23).

A total of 1,963 swabs were sent to virology laboratories from sentinel GPs during the study period, compared with 543 swabs recorded for the same period in 2008. From the swabs recorded in 2009, 527 influenza viruses were identified. The predominant strain was 2009 pandemic influenza A (H1N1) (332 [63%]), followed by seasonal influenza A (H1N1) (72 [14%]), seasonal influenza A (H1N1) (70 [13%]), influenza A not subtyped (44 [8%]), seasonal influenza A (H3N2) (8), and influenza B not typed (1) (Figure 3). The percentage of viruses identified as 2009 pandemic influenza A (H1N1) increased from 14% during the week of June 8–14 to 80% during the week of June 29–July 5.

Nonsentinel Laboratory Surveillance

Nonsentinel laboratory surveillance is conducted by the New Zealand virus laboratory network consisting of the National

FIGURE 3. Number of influenza viruses identified, by type — New Zealand, week ending May 3 through week ending August 2, 2009



* 527 influenza viruses identified by 95 general practitioners, representing all 24 health districts, with a combined patient population of 409,044, approximately 9.6% of the New Zealand population.

† 3,931 influenza viruses identified by the National Influenza Center at the Institute of Environmental Science and Research, plus hospital laboratories at Auckland, Waikato, Wellington, and Christchurch.

Influenza Centre at ESR and four hospital virology laboratories in Auckland, Waikato, Wellington, and Christchurch. ESR collates year-round national laboratory data on influenza from mainly hospital in-patient and outpatients during routine viral diagnosis. In addition, this laboratory network conducted 2009 pandemic influenza A (H1N1)-related public health surveillance among arriving travelers and the contacts of patients with confirmed 2009 pandemic influenza A (H1N1) virus infection. During the containment phase (April 25–June 21), when New Zealand public health officials tried to prevent transmission

from arriving travelers to their close contacts and contain transmission within small, localized clusters of 2009 pandemic influenza A (H1N1) virus infection, respiratory samples largely were collected from persons with suspected 2009 pandemic influenza A (H1N1) virus infection. However, during the management phase (June 22–August 2), when public health officials tried to mitigate the impact of sustained community transmission of the 2009 pandemic influenza A (H1N1) virus, the sampling priority was limited to persons with moderate or severe illness or who were vulnerable to severe illness.

A total of 3,931 influenza viruses were reported from the nonsentinel laboratory surveillance network during the study period. The predominant strain was 2009 pandemic influenza A (H1N1) (2,116), followed by influenza A (not subtyped) (1,076), seasonal influenza A (H1N1) virus (444), seasonal influenza A virus (244), seasonal influenza A (H3N2) virus (49), and influenza B (not typed) (2) (Figure 3). The percentage of viruses identified as 2009 pandemic influenza A (H1N1) increased from 22% during June 8–14 to 66% during June 29–July 5.

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Editorial Note: On April 25, New Zealand became the first country in the southern hemisphere to report importation of 2009 pandemic influenza A (H1N1) virus infection, following the return of an airline flight containing a group of high school students who had traveled to Mexico. A concerted containment effort (e.g., screening arriving airline passengers for ILI, case isolation, quarantine of contacts, and treatment with oseltamivir) by the government, public health officials, border officials, hospitals, primary-care workers, and laboratorians appeared to delay establishment of community transmission for several weeks. New Zealand entered its management phase on June 22 after sentinel and nonsentinel surveillance data indicated that 2009 pandemic influenza A (H1N1) had established sustained community transmission. At that point, the objective of influenza surveillance in New Zealand shifted from early detection of individual cases toward tracking the progression and characteristics of the pandemic by monitoring the virulence, antigenic drift, and antiviral susceptibility of the

2009 pandemic influenza A (H1N1) virus, and also its clinical and epidemiologic features.

Since 1991, sentinel GP surveillance for influenza has operated continuously in New Zealand (3) and has been recognized as one of the best tools for understanding the influenza burden and monitoring year-to-year disease trends. Consultation rates for ILI in New Zealand in 2009 have been the highest observed since 1997 (3). However, the consultation rates likely underestimate the actual incidence of ILI because many persons with ILI will not consult a GP. Beginning June 22, which marked the start of the management phase of the influenza pandemic in New Zealand, national public health officials recommended that only persons who were more seriously ill with ILI or at risk for serious complications from influenza visit a GP.

Both sentinel GP surveillance and nonsentinel laboratory surveillance indicated that the number of viruses identified as 2009 pandemic influenza A (H1N1) rapidly overtook the number identified as seasonal influenza. However, age distribution for 2009 pandemic influenza A (H1N1) was different between sentinel and nonsentinel surveillance. Caution should be used when interpreting nonsentinel surveillance data from clinical and epidemiologic perspectives because the sampling criteria for the nonsentinel laboratory surveillance are not as consistent as those for sentinel GP surveillance. For example, the groups selected for sampling by nonsentinel surveillance were changed from arriving travelers and contacts of patients with 2009 pandemic influenza A (H1N1) virus infection (during the containment phase) to persons with moderate or severe illness or who were vulnerable to severe influenza complications (during the management phase).

Like other southern hemisphere countries with temperate climates, New Zealand entered its winter season with cocirculation of both seasonal and 2009 pandemic influenza A (H1N1) strains. By the week ending July 5, 80% of the viruses identified by sentinel GP surveillance were the 2009 pandemic influenza A (H1N1) virus. In neighboring Australia, the state of Victoria reported that the 2009 pandemic influenza A (H1N1) virus accounted for 87% of all influenza isolates by the week ending July 12 (4). Public health officials are watching closely to see whether the 2009 pandemic influenza A (H1N1) virus becomes equally dominant in other southern hemisphere countries and in northern hemisphere countries during their approaching influenza seasons.

Acknowledgments

The findings in this report are based, in part, on data provided by the Ministry of Health, sentinel GPs and nurses, and influenza surveillance personnel.

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National, State, and Local Area Vaccination Coverage Among Children Aged 19–35 Months — United States, 2008

The National Immunization Survey (NIS) estimates vaccination coverage among children aged 19–35 months for 50 states and selected local areas.* *Healthy People 2010* established vaccination coverage targets of 90% for individual vaccines in the 4:3:1:3:3:1[†] vaccine series and 80% for the series.[§] This report describes the 2008 NIS coverage estimates for this series and individual vaccines, 7-valent pneumococcal conjugate vaccine (PCV7), ≥2 doses of hepatitis A vaccine (HepA), and hepatitis B vaccination received in the first 3 days of life (HepB birth dose)[‡] among children born during January 2005–June 2007. In 2008, 4:3:1:3:3:1 series coverage was 76.1%, compared with 77.4% in 2007; ≥90% coverage was maintained for all

*The 17 local areas sampled separately for the 2008 NIS included six areas that receive federal immunization grant funds and have been included in the NIS every year since its inception in 1994 (District of Columbia; Chicago, Illinois; New York, New York; Philadelphia County, Pennsylvania; Bexar County, Texas; and Houston, Texas). Also included were eight areas chosen by state grantees based on local need that had been included during 1996–2007 (Los Angeles County, California; northern California counties; Santa Clara County, California; Miami-Dade County, Florida; Baltimore, Maryland; Dallas County, Texas; El Paso County, Texas; and eastern/western Washington counties). Also included were three areas sampled for the first time (Madison and St. Clair counties, Illinois; Minneapolis/St. Paul, Minnesota; and Orange County, Florida).

[†] ≥4 doses of diphtheria, tetanus toxoid, and any acellular pertussis vaccine including diphtheria and tetanus toxoid vaccine or diphtheria, tetanus toxoid, and pertussis vaccine; ≥3 doses of poliovirus vaccine; ≥1 dose of measles, mumps, and rubella vaccine; ≥3 doses of *Haemophilus influenzae* type b vaccine; ≥3 doses of hepatitis B vaccine; and ≥1 dose of varicella vaccine.

[§] Additional information about these health objectives is available at <http://www.healthypeople.gov/document/html/objectives/14-24.htm>.

[‡] In addition to the routinely recommended vaccines included in the 4:3:1:3:3:1 combined series, pneumococcal conjugate vaccine and rotavirus vaccine are two other vaccines that are recommended for young children. Estimated coverage for rotavirus vaccine is not included in this report because the 2006 Advisory Committee on Immunization Practices (ACIP) recommendation did not apply to all children in the survey. Rotavirus coverage will be reported for the first time in the 2009 NIS data in next year's report. Additional information is available at <http://www.cdc.gov/mmwr/pdf/rr/rr5512.pdf>.

recommended series vaccines, except ≥ 4 doses of diphtheria, tetanus, and acellular pertussis (DTaP) vaccine (1). Coverage with ≥ 3 doses of *Haemophilus influenzae* type b vaccine (Hib) decreased from 2007, likely because of the shortage of Hib vaccine and the recommendation to defer the routine Hib vaccine booster dose administered at age 12–15 months (2). Substantial variability was observed in individual and series vaccination coverage among states/local areas. Among racial/ethnic groups,** coverage varied little and, after adjusting for poverty, coverage estimates were not significantly lower for any groups compared with whites. However, children living below poverty had lower coverage than children living at or above poverty for most vaccines. Sustaining high coverage levels and using effective methods of reducing disparities across states/local areas and income groups remains a priority to fully protect children and limit the incidence of vaccine-preventable diseases.

The NIS is an ongoing, random-digit-dialed survey of households with children aged 19–35 months at the time of interview, followed by a mail survey of the children's vaccination providers to collect vaccination information. Data are weighted to adjust for households with multiple telephone lines, household nonresponse, and exclusion of households without landline telephones (3). During 2008, the household response rate was 63.2%; a total of 18,430 children with provider-reported vaccination records were included in this report, representing 71.0% of all children with completed household interviews. Estimates were adjusted using final survey weights to correct for nonresponse (3). Logistic regression was used to control for the effects of poverty to further examine differences among racial/ethnic groups. Statistical differences in vaccination coverage were evaluated using t-tests and were considered statistically significant at $p < 0.05$.

National coverage for the 4:3:1:3:3:1 series was 76.1% in 2008, and coverage estimates for all individual vaccines in the series were $\geq 90\%$ except coverage with ≥ 4 doses of DTaP, which was 84.6% (Table 1). PCV7 coverage continued to increase, from 90.0% to 92.8% for ≥ 3 doses and from 75.3% to 80.1% for ≥ 4 doses. Coverage with ≥ 3 doses of *Haemophilus influenzae* type b vaccine (Hib) decreased from 92.6% to 90.9%. National coverage for ≥ 2 doses of HepA was 40.4%. HepB birth dose coverage increased to 55.3%, compared with 53.2% in 2007 (Table 1). The percentage of children receiving no vaccinations by age 19–35 months remained at 0.6%.

Estimated vaccination coverage varied substantially among states and local areas (Table 2). State coverage for the

4:3:1:3:3:1 series ranged from 59.2% (Montana) to 82.3% (Massachusetts) and among local areas from 68.5% (northern California counties) to 80.9% (Santa Clara County, California) (Table 2). Among states, HepB birth dose coverage ranged from 19.1% (Vermont) to 81.4% (Arizona) (Table 2).

Little variability in coverage was observed among racial/ethnic groups (Table 3). Among routinely recommended vaccines, only coverage with ≥ 4 doses of DTaP and ≥ 4 doses of PCV7 was higher among white children compared with black children. This disparity did not persist after controlling for poverty status.†† Vaccination coverage levels were similar across racial/ethnic groups for the combined 4:3:1:3:3:1 series. After controlling for poverty status, no coverage estimates remained significantly lower for any racial/ethnic group compared with whites. Coverage estimates were lower for children living below poverty compared with those living at or above poverty for the 4:3:1:3:3:1 series and for most vaccines; coverage was lower by 7–9 percentage points for ≥ 4 doses of DTaP and PCV7 (Table 3). National coverage with ≥ 3 doses of Hib declined significantly compared with 2007 for children living below poverty (-3.1 percentage points), whereas coverage did not decline significantly for children living at or above poverty (-0.9 percentage points).

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Editorial Note: The results from the 2008 NIS, a vaccination coverage survey of children born during January 2005–June 2007, demonstrate that the nation's immunization program (i.e., the U.S. network of federal, state, and local public health officials in partnership with health-care providers and parents) remained successful in maintaining high vaccination rates among young children. However, with approximately 12,000 children born every day in the United States, each requiring protection from vaccine-preventable diseases, continued attention is needed to meet *Healthy People 2010* vaccination coverage levels and improve coverage in select groups with lower vaccination coverage.

A significant gap in coverage persists between children who live in poverty and those who do not. This difference suggests that barriers to accessing preventive health care among children living below poverty, such as the underinsured or uninsured, are not fully addressed by programs already in place, such as the Vaccines for Children Program,^{§§} which covers only the cost

** Race was self-reported. Respondents identified as white, black, Asian, or American Indian/Alaska Native are all non-Hispanic. Persons identified as Hispanic might be of any race. Children identified as multiple race selected more than one race category.

†† The poverty status variable categorizes income into 1) at or above the poverty level and 2) below the poverty level. Poverty level was based on 2007 U.S. Census poverty thresholds, available at <http://www.census.gov/hhes/www/poverty.html>.

§§ Additional information on the Vaccines for Children program is available at <http://www.cdc.gov/vaccines/programs/vfc/default.htm>.

TABLE 1. Estimated vaccination coverage among children aged 19–35 months (N = 18,430), by selected vaccines and dosages — National Immunization Survey (NIS), United States, 2004–2008

Vaccine	2004*		2005†		2006‡		2007¶		2008**	
	%	(95% CI)††	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
DTP/DT/DTaP§§										
≥3 doses	95.9	(±0.5)	96.1	(±0.5)	95.8	(±0.5)	95.5	(±0.5)	96.2	(±0.5)
≥4 doses	85.5	(±0.8)	85.7	(±0.9)	85.2	(±0.9)	84.5	(±0.9)	84.6	(±1.0)
Poliovirus										
MMR¶¶ ≥1 dose	91.6	(±0.7)	91.7	(±0.7)	92.8	(±0.6)	92.6	(±0.7)	93.6	(±0.6)
Hib*** ≥3 doses	93.0	(±0.6)	91.5	(±0.7)	92.3	(±0.6)	92.3	(±0.7)	92.1	(±0.7)
Hepatitis B	93.5	(±0.6)	93.9	(±0.6)	93.4	(±0.6)	92.6	(±0.7)	90.9	(±0.7)
≥3 doses	92.4	(±0.6)	92.9	(±0.6)	93.3	(±0.6)	92.7	(±0.7)	93.5	(±0.7)
1 dose by 3 days (birth)†††	47.7	(±1.1)	49.6	(±1.2)	50.1	(±1.1)	53.2	(±1.3)	55.3	(±1.3)
Varicella ≥1 dose										
PCV7§§§	87.5	(±0.7)	87.9	(±0.8)	89.2	(±0.7)	90.0	(±0.7)	90.7	(±0.7)
≥3 doses	73.2	(±1.0)	82.8	(±1.0)	86.9	(±0.8)	90.0	(±0.8)	92.8	(±0.6)
≥4 doses	43.4	(±1.1)	53.7	(±1.3)	68.4	(±1.1)	75.3	(±1.2)	80.1	(±1.1)
Hepatitis A ≥2 doses	NA¶¶¶¶	NA	NA	NA	NA	NA	NA	NA	40.4	(±1.2)
Combined series										
4:3:1:3****	82.5	(±0.9)	82.4	(±1.0)	82.1	(±1.0)	81.8	(±1.0)	79.6	(±1.0)
4:3:1:3:3††††	80.9	(±0.9)	80.8	(±1.0)	80.5	(±1.0)	80.1	(±1.0)	78.2	(±1.1)
4:3:1:3:3:1§§§§	76.0	(±1.0)	76.1	(±1.1)	76.9	(±1.0)	77.4	(±1.1)	76.1	(±1.1)
4:3:1:3:3:1:4¶¶¶¶¶	38.4	(±1.1)	47.2	(±1.3)	60.1	(±1.2)	66.5	(±1.3)	68.4	(±1.2)
Children who received no vaccinations	0.4	(±0.2)	0.4	(±0.1)	0.4	(±0.1)	0.6	(±0.2)	0.6	(±0.2)

* Born during January 2001–July 2003.

† Born during February 2002–July 2004.

‡ Born during January 2003–June 2005 (2006 estimates based on NIS dataset, which was rereleased on February 25, 2008, after correcting for Hispanic overcount in nine states).

¶ Born during January 2004–July 2006.

** Born during January 2005–June 2007.

†† Confidence interval.

§§ Diphtheria, tetanus toxoids and pertussis vaccines, diphtheria and tetanus toxoids, and any acellular pertussis vaccine.

¶¶ Measles, mumps, and rubella vaccine.

*** *Haemophilus influenzae* type b (Hib) vaccine.

††† Hepatitis B vaccine administered between birth and age 3 days.

§§§ 7-valent pneumococcal conjugate vaccine.

¶¶¶¶ The Advisory Committee on Immunization Practices (ACIP) expanded the recommendation of administering hepatitis A vaccine from ≥24 months to children aged 12–23 months in May 2006; therefore, ≥2 doses of hepatitis A coverage in the 2008 NIS is measured among children aged 19–35 months, and previous years of hepatitis A data among children age 19–35 months are not available. Hepatitis A coverage among children aged 24–35 months, including the 2006 and 2007 NIS data, are available in MMWR 2009;58:689–94. NIS data for 2003–2005 are available at <http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#chart>.

**** ≥4 doses of DTaP, ≥3 doses of poliovirus vaccine, ≥1 dose of any measles-containing vaccine, ≥3 doses of Hib vaccine.

†††† 4:3:1:3 plus ≥3 doses of hepatitis B vaccine.

§§§§ 4:3:1:3:3 plus ≥1 dose of varicella vaccine.

¶¶¶¶¶ 4:3:1:3:3:1: plus ≥4 doses of pneumococcal conjugate vaccine.

of the vaccine. Out-of-pocket costs, such as costs of vaccine administration, well-child visits, transportation, lost time from work, or other locally identified barriers must be addressed to raise coverage among all children who live in poverty (4).

Coverage for ≥3 doses of Hib vaccine declined significantly from 2007 to 2008. Although the cause for this decline cannot be determined solely using data from the 2008 NIS, the decline might be related to changes in vaccination practices, including deferral of the booster dose, resulting from a Hib shortage that began December 2007 and ended June 2009 (2,5). During the shortage, the Advisory Committee on Immunization Practices (ACIP) recommended deferring the booster dose normally administered at age 12–15 months, and although this

temporary recommendation did not affect all children surveyed in 2008, it likely affected at least 8%, those who were aged <12 months when the shortage began (CDC, unpublished data, 2009). As Hib vaccine supplies improved, ACIP reinstated the booster dose in June 2009 (2) and recommended that providers administer the booster dose to the deferred children at the child's next routinely scheduled visit or medical encounter (2). In 2009, NIS data collection will include vaccine manufacturer type and a greater proportion of the deferred children, which will allow a more complete examination of the effects of the Hib shortage with subsequent years of data.

The 2008 NIS marks the first time that coverage estimates are routinely reported for the HepB birth dose and for ≥2 doses

TABLE 2. (Continued) Estimated vaccination coverage for the 4:3:1:3:3:1* and 4:3:1:3:3:1:4† vaccination series and selected individual vaccines among children aged 19–35 months (N = 18,430), by state and selected local areas — National Immunization Survey (NIS), United States, 2008§

State/Area	≥3 Hib¶		≥1 HepB (birth)**		≥4 PCV††		≥2 HepA§§		4:3:1:3:3:1		4:3:1:3:3:1:4	
	%	(95%CI¶¶)	%	(95%CI)	%	(95%CI)	%	(95%CI)	%	(95%CI)	%	(95%CI)
Texas	92.7	(±3.5)	66.6	(±5.5)	79.2	(±5.1)	49.1	(±5.6)	77.8	(±4.7)	70.5	(±5.4)
Bexar County	93.0	(±4.1)	63.2	(±6.8)	84.3	(±5.5)	51.1	(±7.5)	76.0	(±6.6)	70.9	(±6.9)
City of Houston	90.4	(±4.5)	61.2	(±7.0)	76.9	(±6.1)	50.8	(±7.4)	72.0	(±6.7)	64.1	(±7.0)
Dallas County	91.1	(±3.7)	68.2	(±6.4)	76.9	(±5.9)	46.8	(±6.9)	74.2	(±6.2)	69.0	(±6.5)
El Paso County	95.1	(±2.5)	84.5	(±4.6)	77.2	(±5.4)	63.4	(±6.2)	74.9	(±5.4)	66.8	(±6.0)
Rest of state	93.3	(±5.2)	66.6	(±8.2)	79.7	(±7.6)	48.1	(±8.3)	79.8	(±6.9)	72.1	(±7.9)
Utah	90.6	(±5.2)	78.6	(±6.7)	76.3	(±7.6)	41.6	(±8.2)	76.6	(±7.3)	65.5	(±8.2)
Vermont	92.6	(±4.1)	19.1	(±6.3)	84.1	(±5.3)	32.8	(±6.7)	64.5	(±6.8)	60.8	(±7.0)
Virginia	92.6	(±5.5)	42.2	(±8.7)	81.7	(±7.2)	34.3	(±8.0)	72.9	(±8.3)	68.1	(±8.6)
Washington	89.6	(±3.9)	72.6	(±5.3)	77.2	(±5.5)	36.0	(±5.8)	73.5	(±5.8)	67.3	(±6.2)
Eastern/Western Washington counties	91.3	(±3.6)	71.8	(±6.3)	78.1	(±5.6)	31.6	(±6.4)	75.6	(±5.8)	68.7	(±6.4)
Rest of state	88.8	(±5.3)	73.0	(±7.1)	76.9	(±7.5)	37.8	(±7.9)	72.6	(±7.9)	66.7	(±8.5)
West Virginia	94.1	(±3.2)	55.3	(±7.2)	72.4	(±7.1)	34.8	(±6.2)	76.5	(±6.0)	62.8	(±7.3)
Wisconsin	88.3	(±5.4)	55.8	(±7.6)	84.9	(±5.8)	37.2	(±7.1)	79.6	(±6.5)	72.6	(±7.2)
Wyoming	80.7	(±5.4)	63.5	(±6.4)	69.2	(±6.2)	28.2	(±6.0)	64.6	(±6.4)	56.2	(±6.6)

* Includes ≥4 doses of diphtheria, tetanus toxoid, and any acellular pertussis vaccine (DTaP) (also can include diphtheria and tetanus toxoid vaccine or diphtheria, tetanus toxoid, and pertussis vaccine); ≥3 doses of poliovirus vaccine; ≥1 doses of any measles-containing vaccine; ≥3 doses of *Haemophilus influenzae* type b vaccine; ≥3 doses of hepatitis B vaccine; and ≥1 dose of varicella vaccine.

† 4:3:1:3:3:1 plus ≥4 doses of 7-valent pneumococcal conjugate vaccine (PCV7).

§ Children in the 2008 National Immunization Survey were born during January 2005–June 2007.

¶ ≥3 doses of *Haemophilus influenzae* type b (Hib) vaccine. 4 doses of DTaP.

** ≥1 dose of hepatitis B vaccine administered between birth and age 3 days.

†† ≥4 doses of 7-valent pneumococcal conjugate vaccine.

§§ ≥2 doses of hepatitis A vaccine. The Advisory Committee on Immunization Practices (ACIP) expanded the recommendation of administering hepatitis A vaccine from ≥24 months to children aged 12–23 months in May 2006. In the 2008 NIS, administration of ≥2 doses of hepatitis A vaccine is measured among children aged 19–35 months. Previous years of hepatitis A data were measured among children aged 24–35 months.

¶¶ Confidence interval.

*** Estimate = NA (not available) if the unweighted sample size for the denominator was <30 or (CI half width) / estimate > 0.6 or (CI half width) >10.

of HepA among children aged 19–35 months, although previous estimates have been reported^{¶¶} (6,7). National coverage for HepB birth dose and ≥2 doses of HepA was 55.3% and 40.4%, respectively. Previous data reported HepA coverage for ≥1 doses, not the full 2-dose series, among a subset of children, aged 24–35 months (6). The 2008 NIS is the first survey year to include a majority of children (96%) who were aged <12 months in May 2006, when CDC published the ACIP revision to begin HepA vaccination at age 12–23 months; this allowed measurement of ≥2 doses of HepA coverage among children aged 19–35 months (8). Similarly, most children in the 2008 NIS were born after December 2005 (69%), when ACIP updated the HepB birth dose recommendation to include all medically stable newborns when administering the first dose before hospital discharge (9).

The findings in this report are subject to at least three limitations. First, NIS is a landline telephone survey; although studies indicate that statistical adjustments adequately compensate for noncoverage of households without telephones, nonresponse

and noncoverage bias might remain (10). Second, underestimates of vaccination coverage might have resulted from the exclusive use of provider-reported vaccination histories because completeness of these records is unknown. Finally, although annual national coverage estimates are precise, estimates for state and local areas should be interpreted with caution because of smaller sample sizes and wider confidence intervals.

CDC currently is engaged in many areas of research to address vaccination coverage, including evaluations of interventions at state and local levels to increase vaccination coverage, and surveys to understand physician and parent beliefs about vaccines. CDC continues to encourage use of proven methods of improving coverage, which include parent and provider reminder/recall, reducing out-of-pocket costs, increasing access to vaccination, and multi-component interventions that include education.***

*** Additional information available at <http://www.healthypeople.gov/document/html/objectives/14-24.htm>.

¶¶ Previous coverage estimates for these antigens among different cohorts or different age groups as well as all NIS childhood estimates from 1996 to present are available at <http://www.cdc.gov/vaccines/stats-surv/imz-coverage.htm#chart>.

TABLE 3. Estimated vaccination coverage among children aged 19–35 months (N = 18,430), by selected vaccines and dosages, race/ethnicity,* and poverty level† — National Immunization Survey (NIS), United States, 2008[§]

Vaccine	White, non-Hispanic		Black, non-Hispanic		Hispanic		American Indian/ Alaska Native, non-Hispanic		Asian, non-Hispanic		Multiple race, non-Hispanic		Below poverty		At or above poverty	
	%	(95% CI) [¶]	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
DTaP**																
≥3 doses	96.2	(±0.5)	94.6	(±2.6)	96.6	(±0.9)	93.0	(±4.7)	98.6	(±1.4)	96.5	(±1.6)	94.1	(±1.5)	97.2	(±0.4)
≥4 doses	85.0	(±1.2)	80.1	(±3.4)	84.9	(±2.0)	82.0	(±7.2)	92.3	(±3.7)	87.6	(±3.2)	79.9	(±2.3)	86.8	(±1.0)
Poliovirus ≥3 doses	93.6	(±0.8)	91.5	(±2.8)	94.3	(±1.2)	90.6	(±5.6)	96.5	(±2.1)	94.3	(±2.1)	91.8	(±1.6)	94.4	(±0.6)
MMR†† ≥1 dose	91.3	(±1.0)	92.0	(±1.9)	92.8	(±1.4)	95.8	(±2.7)	94.7	(±2.5)	94.0	(±2.2)	92.3	(±1.4)	92.0	(±0.8)
Hib^{§§} ≥3 doses	90.8	(±0.9)	88.6	(±2.9)	91.9	(±1.5)	88.9	(±5.4)	92.6	(±2.9)	89.9	(±2.9)	88.0	(±1.9)	92.2	(±0.7)
Hepatitis B																
≥3 doses	93.4	(±0.8)	92.1	(±2.8)	93.7	(±1.5)	91.5	(±5.3)	97.5	(±1.7)	94.9	(±2.1)	91.4	(±1.8)	94.4	(±0.6)
1 dose by 3 days (birth) ^{¶¶}	54.7	(±1.5)	56.8	(±3.8)	54.1	(±2.9)	68.6	(±9.7)	57.2	(±7.2)	61.3	(±5.7)	57.0	(±2.8)	54.0	(±1.4)
Varicella ≥1 dose	89.8	(±1.0)	90.4	(±2.2)	91.8	(±1.5)	93.8	(±3.1)	94.2	(±2.5)	90.9	(±2.8)	90.1	(±1.6)	91.1	(±0.8)
PCV7***																
≥3 doses	92.8	(±0.7)	90.9	(±2.9)	94.1	(±1.2)	86.7	(±7.0)	91.2	(±3.0)	93.6	(±2.3)	90.7	(±1.6)	93.8	(±0.6)
≥4 doses	81.4	(±1.2)	76.4	(±3.4)	78.6	(±2.4)	70.6	(±8.9)	82.3	(±4.8)	85.4	(±3.5)	74.2	(±2.5)	82.8	(±1.1)
Hepatitis A ≥2 doses	37.6	(±1.5)	39.7	(±3.7)	44.7	(±2.9)	NA ^{†††}	NA	47.4	(±7.4)	42.3	(±6.0)	39.7	(±2.6)	40.8	(±1.4)
Combined series																
4:3:1:3 ^{§§§}	79.3	(±1.3)	75.8	(±3.5)	80.7	(±2.2)	79.3	(±7.5)	84.8	(±4.6)	82.9	(±3.7)	75.4	(±2.4)	81.4	(±1.1)
4:3:1:3:3 ^{¶¶¶}	77.8	(±1.3)	74.2	(±3.5)	79.4	(±2.3)	78.7	(±7.6)	84.2	(±4.7)	81.5	(±3.9)	74.1	(±2.4)	80.0	(±1.1)
4:3:1:3:3:1 ^{****}	75.3	(±1.4)	72.7	(±3.5)	77.7	(±2.3)	77.3	(±7.6)	82.2	(±4.8)	79.3	(±4.1)	72.4	(±2.5)	77.7	(±1.2)
4:3:1:3:3:1:4 ^{††††}	68.2	(±1.5)	65.9	(±3.7)	68.5	(±2.7)	62.6	(±9.5)	73.5	(±5.9)	75.7	(±4.4)	63.1	(±2.7)	70.8	(±1.3)

* Race/ethnicity categories are mutually exclusive. Race group of Native Hawaiian or other Pacific Islanders was not included because of small sample size.

† Poverty level is determined for all children based on 2007 U.S. Census poverty thresholds, available at <http://www.census.gov/hhes/www/poverty.html>. Children are classified into two levels of income: 1) at or above the poverty level, and 2) below the poverty level.

§ Children in the 2008 NIS were born during January 2005–June 2007.

¶ Confidence interval.

** Diphtheria, tetanus toxoid, and any acellular pertussis vaccine, which can include diphtheria and tetanus toxoid vaccine or diphtheria, tetanus toxoid, and pertussis vaccine.

†† Measles, mumps, and rubella vaccine.

§§ *Haemophilus influenzae* type b (Hib) vaccine.

¶¶ Hepatitis B vaccine administered between birth and age 3 days.

*** 7-valent pneumococcal conjugate vaccine.

††† Estimate = NA (not available) if the unweighted sample size for the numerator was <30 or (CI half width) / estimate > 0.5 or (CI half width) >10.

§§§ ≥4 doses of DTP/DT/DTaP, ≥3 doses of poliovirus vaccine, and ≥1 doses of any measles-containing vaccine, and ≥3 doses of Hib vaccine.

¶¶¶ 4:3:1:3 plus ≥3 doses of hepatitis B vaccine.

**** 4:3:1:3:3 plus ≥1 dose of varicella vaccine.

†††† 4:3:1:3:3:1 plus ≥4 doses of PCV7.

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Notice to Readers

Clinical Vaccinology Course — November 13–15, 2009

A clinical vaccinology course for health-care professionals will be held November 13–15, 2009, at the Grand Hyatt Atlanta in Buckhead, in Atlanta, Georgia. Through lectures

and interactive case presentations, the course will focus on new developments and concerns related to the use of vaccines in pediatric, adolescent, and adult populations. Leading infectious disease experts, including pediatricians, internists, and family physicians, will present the latest information on newly available vaccines, vaccines in development, and vaccines whose continued administration is essential to improving disease prevention efforts.

This course is specifically designed for physicians, nurses, physician assistants, pharmacists, vaccine program administrators, and other health professionals involved with or interested in the clinical use of vaccines. It also will interest federal, state, and local health-care professionals involved in the prevention and control of infectious diseases. Course participants should have a knowledge of or interest in vaccines and vaccine-preventable diseases.

CDC and five national organizations are collaborating with the National Foundation for Infectious Diseases (NFID), Emory University School of Medicine, and the Emory Vaccine Center to sponsor this course. Continuing education credits will be offered. Information regarding the preliminary program, registration, and hotel accommodations is available at <http://www.nfid.org>, or by e-mail (idcourse@nfid.org), fax (301-907-0878), telephone (301-656-0003, ext. 19), or mail (NFID, 4733 Bethesda Avenue, Suite 750, Bethesda, MD 20814-5228).

Notice to Readers

Annual Conference on Antimicrobial Resistance – February 1–3, 2010

CDC and 11 other national agencies and organizations will collaborate with the National Foundation for Infectious Diseases in sponsoring the 2010 Annual Conference on Antimicrobial Resistance (including basic science, prevention, and control), February 1–3, 2010, at the Hyatt Regency Bethesda Hotel in Bethesda, Maryland. Six symposia will be offered. Topics include antiviral drug resistance, economic and public policy aspects of antibiotic resistance and antibiotic development, susceptibility issues, implications of rapid diagnostic testing, methicillin-resistant *Staphylococcus aureus* (MRSA), and stewardship and policy. The conference keynote will address the globalization of antimicrobial resistance.

Oral and poster presentations will be selected through peer review of submitted abstracts. Deadline for submission of abstracts is October 19, 2009. Continuing education credits will be offered. Information regarding the preliminary program, abstract submission, registration, and hotel accommodations is available online at <http://www.nfid.org/>

[conferences/resistance10](http://www.nfid.org/conferences/resistance10), or by e-mail (resistance@nfid.org), fax (301-907-0878), or telephone (301-656-0003, ext. 19).

Notice to Readers

CDC World Rabies Day Symposium – September 28, 2009

September 28, 2009, marks World Rabies Day, a day focused on educating veterinarians, physicians, and community members across the globe about rabies transmission, prevention, and control. Rabies is a preventable disease that claims approximately 55,000 human lives per year (1). According to global estimates, 45%–60% of rabies fatalities occur in children (1,2). Rabies is endemic in many developing nations, and approximately 56% of human rabies deaths occur in Asia alone (2). Although human rabies is less common in developed nations, wildlife are viral reservoirs for ongoing human exposure.

To raise awareness about rabies, World Rabies Day was established in September 2006 as an annual event. One of the missions of the World Rabies Day campaign is “working together to make rabies history” and involves collaboration of multiple organizations, including the Alliance for Rabies Control, CDC, the World Organization for Animal Health, and the Pan American Health Organization. The campaign is based, in part, on the One Health (or One Medicine) initiative, which addresses the convergence of human, animal, and environmental health.*

World Rabies Day events are held worldwide. On September 28, CDC will convene a World Rabies Day Symposium, which will focus on the importance of rabies prevention and control at global and national levels, and related epidemiologic, diagnostic, and surveillance issues. This year’s symposium will be held in memory of the late Dr. George M. Baer, in reflection of his pioneering work on oral rabies vaccination and his dedication to rabies prevention and control in the United States and abroad. The symposium will be held at the CDC Global Communication Center in Auditorium A. Registration is free, but seating is limited. Online registration is available at <http://www.worldrabiesday.org/en/events/cdc-symposium.html>. Additional information about World Rabies Day is available at <http://www.worldrabiesday.org>.

* Additional information available at <http://www.onehealthinitiative.com>.

References

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TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending August 22, 2009 (33rd week)*

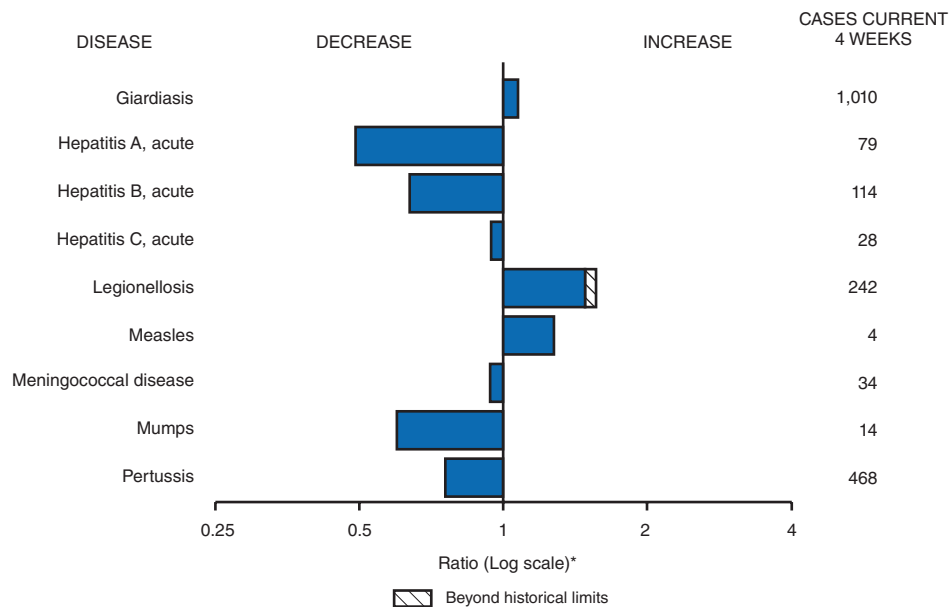
Disease	Current week	Cum 2009	5-year weekly average [†]	Total cases reported for previous years					States reporting cases during current week (No.)
				2008	2007	2006	2005	2004	
Anthrax	—	—	0	—	1	1	—	—	
Botulism:									
foodborne	—	11	1	17	32	20	19	16	
infant	—	31	2	109	85	97	85	87	
other (wound and unspecified)	2	16	1	19	27	48	31	30	CA (2)
Brucellosis	—	59	2	80	131	121	120	114	
Chancroid	—	24	0	25	23	33	17	30	
Cholera	—	4	0	5	7	9	8	6	
Cyclosporiasis [§]	3	94	4	139	93	137	543	160	NY (2), FL (1)
Diphtheria	—	—	—	—	—	—	—	—	
Domestic arboviral diseases ^{§,¶} :									
California serogroup	—	3	5	62	55	67	80	112	
eastern equine	—	1	1	4	4	8	21	6	
Powassan	—	—	0	2	7	1	1	1	
St. Louis	—	6	1	13	9	10	13	12	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis ^{§, **} :									
<i>Ehrlichia chaffeensis</i>	16	427	25	1,137	828	578	506	338	NH (1), MO (1), MD (2), NC (1), TN (4), AL (1), OK (6)
<i>Ehrlichia ewingii</i>	1	3	0	9	—	—	—	—	SC (1)
<i>Anaplasma phagocytophilum</i>	6	288	21	1,026	834	646	786	537	NY (5), MD (1)
undetermined	—	76	6	180	337	231	112	59	
<i>Haemophilus influenzae</i> , ^{††}									
invasive disease (age <5 yrs):									
serotype b	—	13	0	30	22	29	9	19	
nonserotype b	—	127	3	244	199	175	135	135	
unknown serotype	3	144	3	163	180	179	217	177	PA (1), OK (1), HI (1)
Hansen disease [§]	—	41	1	80	101	66	87	105	
Hantavirus pulmonary syndrome [§]	—	6	0	18	32	40	26	24	
Hemolytic uremic syndrome, postdiarrheal [§]	1	118	9	330	292	288	221	200	OH (1)
Hepatitis C viral, acute	9	997	15	878	845	766	652	720	OH (1), MI (1), MO (1), FL (1), TN (1), OK (4)
HIV infection, pediatric (age <13 years) ^{§§}	—	—	2	—	—	—	380	436	
Influenza-associated pediatric mortality ^{§, ¶¶}	5	111	0	90	77	43	45	—	IL (1), GA (1), TX (1), CA (2)
Listeriosis	9	401	21	759	808	884	896	753	VT (1), NY (4), PA (1), OH (1), MD (2)
Measles***	—	47	1	140	43	55	66	37	
Meningococcal disease, invasive ^{†††} :									
A, C, Y, and W-135	—	180	4	330	325	318	297	—	
serogroup B	1	96	2	188	167	193	156	—	OK (1)
other serogroup	—	18	0	38	35	32	27	—	
unknown serogroup	6	308	8	616	550	651	765	—	PA (1), MI (1), CO (2), AZ (1), CA (1)
Mumps	7	215	13	454	800	6,584	314	258	NY (1), NYC (5), FL (1)
Novel influenza A virus infections	—	§§§	0	2	4	N	N	N	
Plague	—	6	0	3	7	17	8	3	
Poliomyelitis, paralytic	—	—	—	—	—	—	1	—	
Polio virus infection, nonparalytic [§]	—	—	—	—	—	N	N	N	
Psittacosis [§]	—	7	0	8	12	21	16	12	
Q fever total ^{§, ¶¶¶} :									
acute	—	48	3	124	171	169	136	70	
chronic	—	40	1	110	—	—	—	—	
Rabies, human	—	8	0	14	—	—	—	—	
Rubella, 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 [§]	—	95	1	157	132	125	129	132	
Syphilis, congenital (age <1 yr)	—	111	8	434	430	349	329	353	
Tetanus	—	6	1	19	28	41	27	34	
Toxic-shock syndrome (staphylococcal) [§]	—	50	2	71	92	101	90	95	
Trichinellosis	—	12	0	39	5	15	16	5	
Tularemia	—	42	4	123	137	95	154	134	
Typhoid fever	5	211	10	449	434	353	324	322	NY (1), OH (1), MI (1), MN (1), CA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> [§]	—	46	0	63	37	6	2	—	
Vancomycin-resistant <i>Staphylococcus aureus</i> [§]	—	—	—	—	2	1	3	1	
Vibriosis (noncholera <i>Vibrio</i> species infections) [§]	22	264	13	492	549	N	N	N	MD (1), VA (3), GA (2), FL (5), WA (4), CA (6), HI (1)
Yellow fever	—	—	—	—	—	—	—	—	

See Table I footnotes on next page.

TABLE I. (Continued) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending August 22, 2009 (33rd week)*

—: No reported cases. N: Not reportable. Cum: Cumulative year-to-date counts.
 * Incidence data for reporting year 2008 and 2009 are provisional, whereas data for 2004, 2005, 2006, and 2007 are finalized.
 † Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. 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. One hundred and ten influenza-associated pediatric deaths occurring during the 2008–09 influenza season have been reported.
 *** No measles cases were reported for the current week.
 ††† Data for meningococcal disease (all serogroups) are available in Table II.
 §§§ 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 August 22, 2009, with historical data



* Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

Notifiable Disease Data Team and 122 Cities Mortality Data Team
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 Deborah A. Adams Rosaline Dhara
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 Lenee Blanton

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 22, 2009, and August 16, 2008 (33rd week)*

Reporting area	Streptococcal diseases, invasive, group A				<i>Streptococcus pneumoniae</i> , invasive disease, nondrug resistant† Age <5 years					
	Current week	Previous 52 weeks		Cum 2009	Cum 2008	Current week	Previous 52 weeks		Cum 2009	Cum 2008
		Med	Max				Med	Max		
United States	30	101	239	3,717	3,920	18	36	122	1,133	1,177
New England	—	5	28	220	289	—	1	12	40	58
Connecticut	—	0	21	63	81	—	0	11	—	—
Maine§	—	0	2	13	20	—	0	1	3	1
Massachusetts	—	3	10	91	136	—	1	4	28	42
New Hampshire	—	1	4	31	19	—	0	2	7	8
Rhode Island§	—	0	2	9	21	—	0	2	—	7
Vermont§	—	0	3	13	12	—	0	1	2	—
Mid. Atlantic	7	19	43	762	811	7	4	33	177	152
New Jersey	—	3	6	102	147	—	1	4	31	45
New York (Upstate)	3	7	25	249	254	3	2	17	83	68
New York City	—	4	12	145	146	4	0	31	63	39
Pennsylvania	4	6	18	266	264	N	0	2	N	N
E.N. Central	5	17	42	707	759	1	6	18	166	214
Illinois	—	5	12	192	204	—	1	5	23	62
Indiana	—	3	23	114	99	—	0	13	22	23
Michigan	2	3	11	118	129	—	1	5	46	55
Ohio	3	4	13	180	209	1	1	6	49	38
Wisconsin	—	2	10	103	118	—	1	4	26	36
W.N. Central	—	6	37	308	290	3	2	11	100	60
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	—	1	5	37	32	N	0	1	N	N
Minnesota	—	0	34	139	136	3	0	10	57	15
Missouri	—	2	8	69	69	—	0	4	29	27
Nebraska§	—	1	3	32	29	—	0	1	5	7
North Dakota	—	0	4	11	8	—	0	3	4	5
South Dakota	—	0	3	20	16	—	0	2	5	6
S. Atlantic	11	22	47	833	797	1	6	16	212	228
Delaware	—	0	1	9	6	—	0	0	—	—
District of Columbia	—	0	2	—	9	N	0	0	N	N
Florida	6	6	12	205	181	—	1	6	48	44
Georgia	4	5	13	195	179	1	2	6	53	59
Maryland§	1	3	12	134	143	—	1	4	49	44
North Carolina	—	2	12	81	98	N	0	0	N	N
South Carolina§	—	1	5	52	48	—	1	6	32	40
Virginia§	—	3	9	123	102	—	0	4	18	36
West Virginia	—	1	4	34	31	—	0	3	12	5
E.S. Central	1	4	10	144	136	—	1	6	45	60
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	—	1	5	26	29	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	2	—	8
Tennessee§	1	3	9	118	107	—	1	6	45	52
W.S. Central	5	9	79	309	332	5	6	46	193	180
Arkansas§	—	0	2	14	7	—	0	4	19	10
Louisiana	—	0	3	9	14	—	0	3	13	10
Oklahoma	2	3	20	105	76	3	1	7	39	49
Texas§	3	6	59	181	235	2	4	34	122	111
Mountain	—	10	22	323	409	1	4	16	165	190
Arizona	—	3	7	107	142	1	2	10	85	88
Colorado	—	3	9	106	101	—	1	4	31	42
Idaho§	—	0	2	5	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	102	—	0	4	15	25
Utah	—	1	6	40	38	—	0	5	27	28
Wyoming§	—	0	1	1	6	—	0	1	—	1
Pacific	1	4	10	111	97	—	1	6	35	35
Alaska	—	1	3	28	23	—	0	5	29	22
California	N	0	0	N	N	N	0	0	N	N
Hawaii	1	3	8	83	74	—	0	2	6	13
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 2008 and 2009 are provisional.

† Includes cases of invasive pneumococcal disease, in children aged <5 years, caused by *S. pneumoniae*, which is susceptible or for which susceptibility testing is not available (NNDS 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 August 22, 2009, and August 16, 2008 (33rd week)*

Reporting area	<i>Streptococcus pneumoniae</i> , invasive disease, drug resistant†										Syphilis, primary and secondary				
	All ages				Aged <5 years										
	Current week	Previous 52 weeks		Cum 2009	Cum 2008	Current week	Previous 52 weeks		Cum 2009	Cum 2008	Current week	Previous 52 weeks		Cum 2009	Cum 2008
	Med	Max				Med	Max				Med	Max			
United States	7	60	276	1,924	2,150	1	9	21	299	329	161	261	452	8,114	7,974
New England	—	1	48	33	45	—	0	5	2	6	7	5	15	212	207
Connecticut	—	0	48	—	—	—	0	5	—	—	—	1	5	39	18
Maine§	—	0	2	8	14	—	0	1	—	—	—	0	1	1	8
Massachusetts	—	0	1	2	—	—	0	1	2	—	7	4	11	151	149
New Hampshire	—	0	3	5	—	—	0	0	—	—	—	0	2	11	13
Rhode Island§	—	0	6	7	18	—	0	1	—	4	—	0	5	10	14
Vermont§	—	0	2	11	13	—	0	0	—	2	—	0	2	—	5
Mid. Atlantic	—	3	14	115	223	—	0	3	20	20	32	34	51	1,176	1,066
New Jersey	—	0	0	—	—	—	0	0	—	—	6	4	13	148	143
New York (Upstate)	—	1	10	50	46	—	0	2	10	6	2	2	8	79	90
New York City	—	0	4	3	91	—	0	2	—	1	15	22	40	733	655
Pennsylvania	—	1	8	62	86	—	0	2	10	13	9	6	12	216	178
E.N. Central	2	11	41	425	460	—	1	7	62	63	16	23	44	662	724
Illinois	N	0	0	N	N	N	0	0	N	N	—	8	19	185	288
Indiana	—	3	32	141	160	—	0	6	20	20	2	2	10	102	81
Michigan	—	0	2	19	15	—	0	1	2	2	13	3	18	155	129
Ohio	2	7	18	265	285	—	1	4	40	41	1	6	16	191	191
Wisconsin	—	0	0	—	—	—	0	0	—	—	—	1	4	29	35
W.N. Central	—	2	161	91	151	—	0	3	20	30	1	6	14	194	258
Iowa	—	0	0	—	—	—	0	0	—	—	—	0	2	13	13
Kansas	—	1	5	39	58	—	0	2	13	3	—	0	3	18	21
Minnesota	—	0	156	—	22	—	0	3	—	22	—	2	6	40	64
Missouri	—	1	5	40	65	—	0	1	5	2	1	3	10	104	151
Nebraska§	—	0	0	—	—	—	0	0	—	—	—	0	3	15	9
North Dakota	—	0	3	10	2	—	0	0	—	—	—	0	1	3	—
South Dakota	—	0	2	2	4	—	0	2	2	3	—	0	1	1	—
S. Atlantic	2	26	53	916	872	1	4	14	136	143	32	63	262	2,012	1,736
Delaware	—	0	2	14	3	—	0	0	—	—	—	0	3	22	10
District of Columbia	N	0	0	N	N	N	0	0	N	N	—	3	9	96	89
Florida	2	15	36	535	490	1	2	13	86	93	2	20	31	619	650
Georgia	—	8	25	278	293	—	1	5	43	42	—	14	227	452	374
Maryland§	—	0	1	4	4	—	0	0	—	1	—	6	16	189	214
North Carolina	N	0	0	N	N	N	0	0	N	N	21	9	19	361	170
South Carolina§	—	0	0	—	—	—	0	0	—	—	—	2	6	65	56
Virginia§	N	0	0	N	N	N	0	0	N	N	9	6	16	204	166
West Virginia	—	2	13	85	82	—	0	3	7	7	—	0	2	4	7
E.S. Central	1	5	25	191	232	—	1	3	27	42	15	23	36	729	675
Alabama§	N	0	0	N	N	N	0	0	N	N	—	8	16	274	278
Kentucky	—	1	5	54	56	—	0	2	7	9	2	1	10	39	55
Mississippi	—	0	3	—	28	—	0	1	—	8	6	4	18	140	95
Tennessee§	1	3	23	137	148	—	0	3	20	25	7	8	19	276	247
W.S. Central	1	1	6	69	74	—	0	3	14	12	47	49	80	1,575	1,356
Arkansas§	1	0	5	39	13	—	0	3	9	3	12	4	35	136	106
Louisiana	—	1	5	30	61	—	0	1	5	9	—	12	40	303	367
Oklahoma	N	0	0	N	N	N	0	0	N	N	—	1	7	36	46
Texas§	—	0	0	—	—	—	0	0	—	—	35	32	46	1,100	837
Mountain	1	2	7	82	91	—	0	3	17	11	6	7	18	178	409
Arizona	—	0	0	—	—	—	0	0	—	—	—	2	8	22	212
Colorado	—	0	0	—	—	—	0	0	—	—	1	1	5	58	98
Idaho§	N	0	1	N	N	N	0	1	N	N	—	0	2	3	2
Montana§	—	0	1	—	—	—	0	0	—	—	—	0	7	—	—
Nevada§	1	1	4	31	43	—	0	2	7	5	3	1	7	63	52
New Mexico§	—	0	0	—	—	—	0	0	—	—	2	1	5	30	26
Utah	—	1	6	42	47	—	0	3	9	6	—	0	2	—	16
Wyoming§	—	0	2	9	1	—	0	1	1	—	—	0	1	2	3
Pacific	—	0	1	2	2	—	0	1	1	2	5	45	67	1,376	1,543
Alaska	—	0	0	—	—	—	0	0	—	—	—	0	0	—	1
California	N	0	0	N	N	N	0	0	N	N	2	40	59	1,264	1,394
Hawaii	—	0	1	2	2	—	0	1	1	2	—	0	3	19	15
Oregon§	N	0	0	N	N	N	0	0	N	N	2	1	4	31	11
Washington	N	0	0	N	N	N	0	0	N	N	1	2	8	62	122
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	11	126	96
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 2008 and 2009 are provisional.

† Includes cases of invasive pneumococcal disease caused by drug-resistant *S. pneumoniae* (DRSP) (NNDSS event code 11720).

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

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 22, 2009, and August 16, 2008 (33rd week)*

Reporting area	West Nile virus disease†														
	Varicella (chickenpox)				Neuroinvasive				Nonneuroinvasive§						
	Current week	Previous 52 weeks		Cum 2009	Cum 2008	Current week	Previous 52 weeks		Cum 2009	Cum 2008	Current week	Previous 52 weeks		Cum 2009	Cum 2008
	Med	Max				Med	Max				Med	Max			
United States	44	451	1,035	12,032	20,152	—	1	73	65	284	—	0	70	57	358
New England	2	10	46	190	1,101	—	0	2	—	3	—	0	0	—	3
Connecticut	—	0	21	—	562	—	0	2	—	3	—	0	0	—	3
Maine¶	—	0	11	—	174	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	1	1	—	—	0	1	—	—	—	0	0	—	—
New Hampshire	2	4	11	142	174	—	0	0	—	—	—	0	0	—	—
Rhode Island¶	—	0	1	4	—	—	0	1	—	—	—	0	0	—	—
Vermont¶	—	2	17	43	191	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	6	38	58	1,025	1,606	—	0	8	2	17	—	0	4	—	6
New Jersey	N	0	0	N	N	—	0	2	—	1	—	0	1	—	1
New York (Upstate)	N	0	0	N	N	—	0	5	1	6	—	0	2	—	2
New York City	—	0	0	—	—	—	0	2	—	5	—	0	1	—	3
Pennsylvania	6	38	58	1,025	1,606	—	0	2	1	5	—	0	1	—	—
E.N. Central	13	154	254	4,122	4,882	—	0	8	—	5	—	0	3	—	9
Illinois	—	33	73	835	678	—	0	4	—	1	—	0	1	—	5
Indiana	—	1	19	200	—	—	0	1	—	1	—	0	1	—	—
Michigan	3	48	90	1,302	2,074	—	0	4	—	1	—	0	2	—	1
Ohio	10	42	91	1,408	1,575	—	0	3	—	2	—	0	1	—	—
Wisconsin	—	13	55	377	555	—	0	2	—	—	—	0	1	—	3
W.N. Central	1	22	114	659	794	—	0	6	4	26	—	0	10	16	89
Iowa	N	0	0	N	N	—	0	1	—	2	—	0	1	1	2
Kansas	—	5	22	176	314	—	0	2	—	5	—	0	3	4	9
Minnesota	—	0	0	—	—	—	0	1	1	2	—	0	2	—	6
Missouri	1	10	51	426	450	—	0	3	1	3	—	0	1	—	1
Nebraska¶	N	0	0	N	N	—	0	1	—	2	—	0	4	4	19
North Dakota	—	0	108	57	—	—	0	0	—	2	—	0	3	—	31
South Dakota	—	0	4	—	30	—	0	1	2	10	—	0	3	7	21
S. Atlantic	15	56	146	1,395	3,289	—	0	4	—	6	—	0	3	—	9
Delaware	—	0	4	8	29	—	0	0	—	—	—	0	0	—	1
District of Columbia	—	0	3	—	18	—	0	2	—	1	—	0	1	—	—
Florida	6	28	67	913	1,164	—	0	2	—	1	—	0	0	—	—
Georgia	N	0	0	N	N	—	0	1	—	—	—	0	1	—	2
Maryland¶	N	0	0	N	N	—	0	2	—	2	—	0	2	—	4
North Carolina	N	0	0	N	N	—	0	1	—	1	—	0	1	—	—
South Carolina¶	—	4	54	154	583	—	0	0	—	—	—	0	0	—	1
Virginia¶	—	0	119	28	1,004	—	0	0	—	—	—	0	0	—	1
West Virginia	9	9	32	292	491	—	0	0	—	1	—	0	0	—	—
E.S. Central	—	14	28	358	836	—	0	7	13	22	—	0	6	8	37
Alabama¶	—	14	28	356	826	—	0	2	—	6	—	0	2	—	5
Kentucky	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	1	2	10	—	0	4	12	10	—	0	5	7	28
Tennessee¶	N	0	0	N	N	—	0	2	1	6	—	0	3	1	4
W.S. Central	—	94	747	3,247	6,092	—	0	8	17	33	—	0	5	7	37
Arkansas¶	—	4	47	96	475	—	0	1	1	6	—	0	0	—	2
Louisiana	—	1	6	64	55	—	0	3	5	6	—	0	5	5	13
Oklahoma	N	0	0	N	N	—	0	1	1	2	—	0	0	—	5
Texas¶	—	86	721	3,087	5,562	—	0	6	10	19	—	0	2	2	17
Mountain	7	33	83	929	1,465	—	0	12	23	35	—	0	22	20	88
Arizona	—	0	0	—	—	—	0	10	9	15	—	0	8	3	14
Colorado	7	13	44	360	589	—	0	2	3	10	—	0	10	11	27
Idaho¶	N	0	0	N	N	—	0	1	1	3	—	0	6	—	22
Montana¶	—	2	20	105	222	—	0	1	1	—	—	0	2	—	3
Nevada¶	N	0	0	N	N	—	0	2	6	4	—	0	1	4	6
New Mexico¶	—	2	20	134	159	—	0	1	2	2	—	0	1	1	1
Utah	—	12	31	330	485	—	0	2	—	1	—	0	5	—	10
Wyoming¶	—	0	1	—	10	—	0	1	1	—	—	0	2	1	5
Pacific	—	3	12	107	87	—	0	34	6	137	—	0	23	6	80
Alaska	—	2	11	83	42	—	0	0	—	—	—	0	0	—	—
California	—	0	0	—	—	—	0	33	6	136	—	0	18	6	73
Hawaii	—	1	4	24	45	—	0	0	—	—	—	0	0	—	—
Oregon¶	N	0	0	N	N	—	0	2	—	—	—	0	4	—	7
Washington	N	0	0	N	N	—	0	1	—	1	—	0	1	—	—
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	1	3	—	55	—	0	0	—	—	—	0	0	—	—
Puerto Rico	1	8	23	314	410	—	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 2008 and 2009 are 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 August 22, 2009 (33rd week)

Reporting area	All causes, by age (years)							P&† Total	Reporting area	All causes, by age (years)							P&† Total
	All Ages	≥65	45-64	25-44	1-24	<1				All Ages	≥65	45-64	25-44	1-24	<1		
New England	460	299	114	28	11	8	46	S. Atlantic	1,200	701	342	88	40	29	76		
Boston, MA	126	76	35	6	5	4	12	Atlanta, GA	154	87	42	15	6	4	7		
Bridgeport, CT	33	20	9	4	—	—	8	Baltimore, MD	164	77	60	13	4	10	11		
Cambridge, MA	14	10	3	1	—	—	—	Charlotte, NC	97	64	22	6	3	2	10		
Fall River, MA	14	12	2	—	—	—	4	Jacksonville, FL	171	104	40	18	8	1	12		
Hartford, CT	54	34	16	—	2	2	3	Miami, FL	87	52	25	8	—	2	8		
Lowell, MA	16	12	3	1	—	—	1	Norfolk, VA	62	32	24	1	2	3	3		
Lynn, MA	3	2	—	—	1	—	—	Richmond, VA	56	33	17	4	1	1	3		
New Bedford, MA	22	14	5	3	—	—	2	Savannah, GA	63	35	18	5	4	1	1		
New Haven, CT	14	11	2	—	—	1	4	St. Petersburg, FL	57	40	11	2	2	2	5		
Providence, RI	51	35	9	7	—	—	3	Tampa, FL	154	91	50	9	4	—	8		
Somerville, MA	4	2	2	—	—	—	—	Washington, D.C.	123	76	32	7	5	3	6		
Springfield, MA	36	25	8	2	1	—	2	Wilmington, DE	12	10	1	—	1	—	2		
Waterbury, CT	17	10	6	1	—	—	1	E.S. Central	861	561	192	68	21	19	61		
Worcester, MA	56	36	14	3	2	1	6	Birmingham, AL	175	113	44	10	4	4	13		
Mid. Atlantic	1,636	1,108	364	105	34	25	53	Chattanooga, TN	55	37	9	7	2	—	4		
Albany, NY	37	26	6	2	2	1	2	Knoxville, TN	101	75	17	7	2	—	8		
Allentown, PA	24	21	3	—	—	—	2	Lexington, KY	109	72	22	7	2	6	8		
Buffalo, NY	56	41	13	1	—	1	3	Memphis, TN	173	105	41	17	6	4	15		
Camden, NJ	32	19	7	4	2	—	—	Mobile, AL	62	40	11	7	2	2	5		
Elizabeth, NJ	16	12	1	3	—	—	—	Montgomery, AL	58	45	8	4	—	1	3		
Erie, PA	54	41	10	2	1	—	3	Nashville, TN	128	74	40	9	3	2	5		
Jersey City, NJ	U	U	U	U	U	U	U	W.S. Central	991	615	238	75	26	36	50		
New York City, NY	943	632	218	62	17	14	25	Austin, TX	78	49	18	4	6	1	8		
Newark, NJ	25	9	10	—	3	3	1	Baton Rouge, LA	U	U	U	U	U	U	U		
Paterson, NJ	12	9	3	—	—	—	—	Corpus Christi, TX	40	22	13	5	—	—	2		
Philadelphia, PA	147	87	37	15	5	3	1	Dallas, TX	191	108	50	13	7	12	7		
Pittsburgh, PA§	29	20	6	1	2	—	5	El Paso, TX	77	55	16	5	1	—	1		
Reading, PA	36	23	11	2	—	—	2	Fort Worth, TX	U	U	U	U	U	U	U		
Rochester, NY	116	82	22	8	1	3	6	Houston, TX	347	208	90	31	6	12	15		
Schenectady, NY	26	20	4	2	—	—	1	Little Rock, AR	83	51	20	6	—	6	6		
Scranton, PA	21	16	3	1	1	—	—	New Orleans, LA	U	U	U	U	U	U	U		
Syracuse, NY	U	U	U	U	U	U	U	San Antonio, TX	U	U	U	U	U	U	U		
Trenton, NJ	27	22	4	1	—	—	1	Shreveport, LA	47	31	7	5	3	1	2		
Utica, NY	21	19	1	1	—	—	1	Tulsa, OK	128	91	24	6	3	4	9		
Yonkers, NY	14	9	5	—	—	—	—	Mountain	1,036	685	246	60	28	17	56		
E.N. Central	1,451	991	317	92	32	19	83	Albuquerque, NM	112	76	26	7	2	1	4		
Akron, OH	41	27	7	5	2	—	1	Boise, ID	45	33	10	2	—	—	5		
Canton, OH	38	25	9	3	1	—	3	Colorado Springs, CO	42	29	9	3	—	1	—		
Chicago, IL	U	U	U	U	U	U	U	Denver, CO	75	38	29	6	1	1	6		
Cincinnati, OH	U	U	U	U	U	U	U	Las Vegas, NV	283	178	80	17	8	—	20		
Cleveland, OH	224	163	45	12	2	2	15	Ogden, UT	26	14	5	5	2	—	—		
Columbus, OH	120	82	28	7	3	—	11	Phoenix, AZ	156	95	36	8	7	10	5		
Dayton, OH	133	91	35	5	—	2	3	Pueblo, CO	28	19	6	—	3	—	1		
Detroit, MI	129	74	38	10	2	5	10	Salt Lake City, UT	122	92	18	7	3	2	5		
Evansville, IN	45	39	5	1	—	—	5	Tucson, AZ	147	111	27	5	2	2	10		
Fort Wayne, IN	84	55	16	7	5	1	2	Pacific	1,452	1,005	326	76	22	22	142		
Gary, IN	17	7	4	4	1	1	—	Berkeley, CA	4	1	3	—	—	—	—		
Grand Rapids, MI	70	48	16	3	2	1	2	Fresno, CA	108	79	20	7	2	—	10		
Indianapolis, IN	175	108	44	10	8	5	—	Glendale, CA	24	21	2	—	—	1	5		
Lansing, MI	31	19	4	6	2	—	3	Honolulu, HI	71	54	14	3	—	—	11		
Milwaukee, WI	76	51	19	3	2	1	3	Long Beach, CA	57	38	15	3	—	1	8		
Peoria, IL	30	24	4	1	1	—	6	Los Angeles, CA	244	146	70	16	9	3	30		
Rockford, IL	55	38	9	7	—	1	6	Pasadena, CA	19	10	5	1	—	3	—		
South Bend, IN	34	27	5	2	—	—	4	Portland, OR	U	U	U	U	U	U	U		
Toledo, OH	92	65	21	5	1	—	6	Sacramento, CA	194	144	37	11	—	2	15		
Youngstown, OH	57	48	8	1	—	—	3	San Diego, CA	164	113	37	6	3	4	20		
W.N. Central	579	371	141	41	11	15	21	San Francisco, CA	100	66	22	10	1	1	11		
Des Moines, IA	67	50	12	3	—	2	1	San Jose, CA	163	117	31	9	4	2	18		
Duluth, MN	25	15	8	1	1	—	2	Santa Cruz, CA	23	14	7	2	—	—	1		
Kansas City, KS	19	8	7	3	—	1	—	Seattle, WA	118	74	34	7	—	3	11		
Kansas City, MO	97	56	29	10	1	1	2	Spokane, WA	66	51	11	1	1	2	2		
Lincoln, NE	48	44	3	—	1	—	4	Tacoma, WA	97	77	18	—	2	—	—		
Minneapolis, MN	61	27	17	7	2	8	4	Total¶	9,666	6,336	2,280	633	225	190	588		
Omaha, NE	95	69	18	6	2	—	4										
St. Louis, MO	54	25	18	7	2	2	4										
St. Paul, MN	48	37	8	2	—	1	—										
Wichita, KS	65	40	21	2	2	—	—										

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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