

Clusters of Acute Respiratory Illness Associated with Human Enterovirus 68 — Asia, Europe, and United States, 2008–2010

In the past 2 years, CDC has learned of several clusters of respiratory illness associated with human enterovirus 68 (HEV68), including severe disease. HEV68 is a unique enterovirus that shares epidemiologic and biologic features with human rhinoviruses (HRV) (1). First isolated in California in 1962 from four children with bronchiolitis and pneumonia (2), HEV68 has been reported rarely since that time and the full spectrum of illness that it can cause is unknown. The six clusters of respiratory illness associated with HEV68 described in this report occurred in Asia, Europe, and the United States during 2008–2010. HEV68 infection was associated with respiratory illness ranging from relatively mild illness that did not require hospitalization to severe illness requiring intensive care and mechanical ventilation. Three cases, two in the Philippines and one in Japan, were fatal. In these six clusters, HEV68 disproportionately occurred among children. CDC learned of clusters of HEV68 from public health agencies requesting consultation or diagnostic assistance and from reports presented at scientific conferences. In each cluster, HEV68 was diagnosed by reverse transcription–polymerase chain reaction (RT-PCR) testing targeting the 5′-nontranslated region, followed by partial sequencing of the structural protein genes, VP4–VP2, VP1, or both, to give definitive, enterovirus type-specific information. This report highlights HEV68 as an increasingly recognized cause of respiratory illness. Clinicians should be aware of HEV68 as one of many causes of viral respiratory disease and should report clusters of unexplained respiratory illness to the appropriate public health agency.

Philippines

During October 2008–March 2009, an outbreak of HEV68 was detected in the Eastern Visayas region of the Philippines among pediatric patients hospitalized with pneumonia (3). As part of a study of the etiology of pediatric viral respiratory illness, clinical samples from 816 patients hospitalized with pneumonia during May 2008–May 2009 were screened

retrospectively for HEV68 by molecular methods (RT-PCR and partial sequencing); 21 (2.6%) were found to be positive. The virus was first detected in late October 2008, and cases peaked in early December. No cases of HEV68-related illness were found after March 2009. Among the 21 patients with HEV68 infection, 17 (81%) were aged 0–4 years (Table). Common signs and symptoms included cough, difficulty breathing, wheezing, and retractions. Two cases were fatal.

Japan

Japan's Infectious Agent Surveillance Report (IASR) system, which receives reports from local public health laboratories,* first received sporadic reports of HEV68 in 2005, with ≤10 cases identified each year until 2010. During 2010, an increase in HEV68 cases was observed, with more than 120 cases. Most HEV68 infections occurred during July–October 2010, with detections throughout Japan during this time. Clinical and demographic information was only available on a subset of 11 pediatric patients who were positive for HEV68. Of these 11 HEV68 cases, 10 were in patients diagnosed with acute respiratory illnesses, such as asthmatic bronchitis or pneumonia, and one in a patient with febrile convulsions

* Reports, published in Japanese and some in English, are available at <http://idsc.nih.go.jp/iasr/virus/virus-e.html>.

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TABLE. Human enterovirus 68 cases, by cluster location and age group — Asia, Europe, and United States, 2008–2010

Location	No. overall	Age group (yrs)			
		0–4	5–9	10–19	≥20
Total	95	54	11	12	18
Japan	11	10	1	0	—*
Netherlands	24	11	1	0	12
Philippines	21	17	2	2	—*
United States	39	16	7	10	6
Georgia	6	0	0	0	6
Pennsylvania	28	15	5	8	—*
Arizona	5	1	2	2	—*

* Surveillance studies in this area did not include patients aged ≥20 years.

(4). Of the 11 patients, 10 were aged 0–4 years (Table). One fatal case occurred, involving a boy aged 4 years in whom HEV68 was detected by nucleic acid amplification from a pharyngeal swab. The boy, who had been healthy with no underlying disease, arrived at the emergency department in cardiopulmonary arrest and could not be resuscitated (5).

Netherlands

During August–November 2010, HEV68 was detected within a prospective, hospital-based study of respiratory infections in the northern part of the Netherlands. All rhinovirus-positive samples obtained during September 2009–January 2011 were sequenced as part of a validation study. Specimens from 24 patients with acute respiratory illness, including pneumonia, asthma exacerbation, and wheezing,

were positive for HEV68. Among the 24 patients, 23 were hospitalized during their illness, and five required intensive care. Three of the infections were acquired while in the hospital. Half of the 24 patients with HEV68 infection were aged ≥20 years (Table). Chronic underlying illness was present in approximately 80% of patients; no deaths were reported.

The National Institute for Public Health and the Environment also observed an increase in HEV68 infections among patients sampled in 2010 by the Netherlands sentinel general practice network for surveillance of acute respiratory infections among 42 practices. Samples have been collected in this network since 1994 and analyzed by RT-PCR for enteroviruses, allowing for a retrospective characterization of trends. As of the fall of 2010, a substantially greater number of HEV68 infections had occurred throughout the Netherlands that year than in previous years.

United States

Georgia. In September 2009, a hospital in Atlanta started using a new, multipathogen testing system (Luminex xTAG Respiratory Viral Panel [RVP], Luminex Corporation, Austin, Texas) for respiratory viral testing in its laboratory. The system can detect several respiratory viruses, including HRVs and enteroviruses, which are identified by the system only as “entero-rhinovirus.” During the next respiratory illness season, September 2009–April 2010, adult patients at the Atlanta hospital facility who were diagnosed with “entero-rhinovirus” appeared to be more ill than those diagnosed with HRV in

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previous seasons. Nucleic acid sequencing of 68 specimens from the 2009–2010 season revealed that 62 (91.2%) contained HRV and six (8.8%) contained HEV68. Among the six patients with HEV68 (Table), three were aged >50 years and two were immunocompromised. Five patients had fever and four had cough. One patient had abnormal findings on chest radiography that were attributed to cryptococcosis. No other cases were associated with coinfections. Three patients were hospitalized for a median of 4 days. None of the patients required admission to an intensive-care unit (ICU), and none died.

Pennsylvania. In mid-September 2009, a pediatric hospital in Philadelphia noted more than twice the proportion of respiratory specimens testing positive for HRV by RT-PCR compared with those seen during previous fall HRV seasons. An investigation identified 390 children treated at the hospital during August–October 2009 from whom at least one respiratory specimen was positive for HRV. Respiratory specimens from 66 of these children were sent to CDC for further molecular characterization. HEV68 was identified in 28 (42%) of the specimens. Among the 28 patients with HEV68 infection, 15 (54%) were aged 0–4 years (Table), and 15 were admitted to the ICU. The median duration of hospitalization was 5 days, and none of the patients died.

Arizona. During August–September 2010, hospital officials at an isolated community hospital in rural Arizona noted an increase in pediatric admissions for lower respiratory tract illness. During this time, 43% of pediatric admissions were for respiratory illness, compared with a mean of 17% during the same period in the 3 previous years, a statistically significant difference. Similar illness, characterized by cough and tachypnea or hypoxemia, occurred in 18 patients. Abnormal lung examination result and wheezing, particularly new-onset wheezing, were noted. At least half of children with available chest radiographs had infiltrates. Hospitalization lasted a median of 1.5 days, and no deaths were reported. Despite viral testing and blood cultures performed at the Arizona Department of Health Services on patients with specimens available, no pathogen was detected. Nasopharyngeal specimens of seven patients were sent to CDC for further testing, and HEV68 was identified in five of the patients, one of whom also was positive by RT-PCR testing for *Streptococcus pneumoniae*.

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What is already known on this topic?

Human enterovirus 68 (HEV68) is a unique enterovirus that shares epidemiologic and biologic features with human rhinoviruses.

What is added by this report?

Although isolated cases of HEV68 have been reported since the virus was described in 1962, clusters of cases have been recognized only recently. The clusters described in this report occurred late in the typical enterovirus season and included severe cases, three of which were fatal.

What are the implications for public health practice?

Clinicians should be aware of HEV68 as one of many possible causes of viral respiratory disease. Some diagnostic tests might not detect HEV68 or might misidentify it as a human rhinovirus.

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Editorial Note

Enteroviruses and HRV are common, closely related human pathogens in the *Picornaviridae* family. Most enterovirus infections are asymptomatic. When an enterovirus does cause disease, clinical manifestations vary widely and can include mild upper respiratory illness, febrile rash illness, and neurologic illness, such as aseptic meningitis and encephalitis. In contrast, HEV68 has been associated almost exclusively with respiratory disease (1,6). Since the early 1960s, only sporadic cases of infection with HEV68 have been reported (6,7). Identification of a large number of patients with HEV68 respiratory disease detected during a single season, such as described in this report, is a recent phenomenon.

Whether this increase in recognized cases is attributable to improved diagnostics or whether the clusters themselves represent an emergence of the pathogen is unknown. The technology for isolation of enteroviruses is not new. Viral culture has been available since the 1950s, although antisera for identifying an isolate as HEV68 were not widely available initially. The National Enterovirus Surveillance System, which has collected information on enterovirus isolates in the United States since 1961, recorded 26 isolates during 1987–2005; the highest number in a single year was 11 in 2003 (7).

During the past decade, improvements in nucleic acid amplification methods have increased the sensitivity of

enterovirus detection and typing. In the clusters reported during 2008–2010, HEV68 was detected by real-time RT-PCR. Some sites used commercial, multipathogen detection systems that can detect enteroviruses. Two such systems, Luminex xTAG RVP and Idaho Technologies (Salt Lake City, Utah) FilmArray Respiratory Panel, are approved by the Food and Drug Administration for use in clinical settings in the United States. Both systems use broadly reactive primers that amplify RNA from either HRVs or enteroviruses (results are reported as “entero-rhinovirus” or “human rhinovirus/enterovirus”).

Classic enteroviruses have prominent summer-fall seasonality in temperate climates (7,8), and outbreaks of enteroviruses tend to occur in several-year cycles. In the United States, echovirus 9 typically peaks every 3 to 5 years; echovirus 30 occurs irregularly and can remain active for several years (7). In France, HEV68 was associated with an autumnal peak of respiratory tract infections in 2008 (6). The seasonality of the HEV68 clusters described in this report typically fall within or later than the typical enterovirus season in the areas from which cases were reported (Figure) (7).

These recent clusters confirm that HEV68 is associated with outbreaks of respiratory illness severe enough to require hospitalization, and in some cases, might contribute to patient death. New-onset wheezing or asthma exacerbation were notable symptoms. However, in each cluster, respiratory specimens typically were collected from persons who had sought medical care or were hospitalized, which would have biased these reports toward more severe disease.

The spectrum of illness caused by HEV68 remains unclear. HEV68, like other enteroviruses, has been associated with central nervous system disease (9). Further investigation could help clarify the epidemiology and spectrum of disease caused by HEV68. Some diagnostic tests might not detect HEV68 or might misidentify it as an HRV. The gold standard test for HEV68 detection is partial sequencing of the structural protein genes, VP4-VP2 or VP1. Cases in this report were confirmed with this method. However, the sensitivity of multipathogen detection systems for HEV68 detection is unknown.

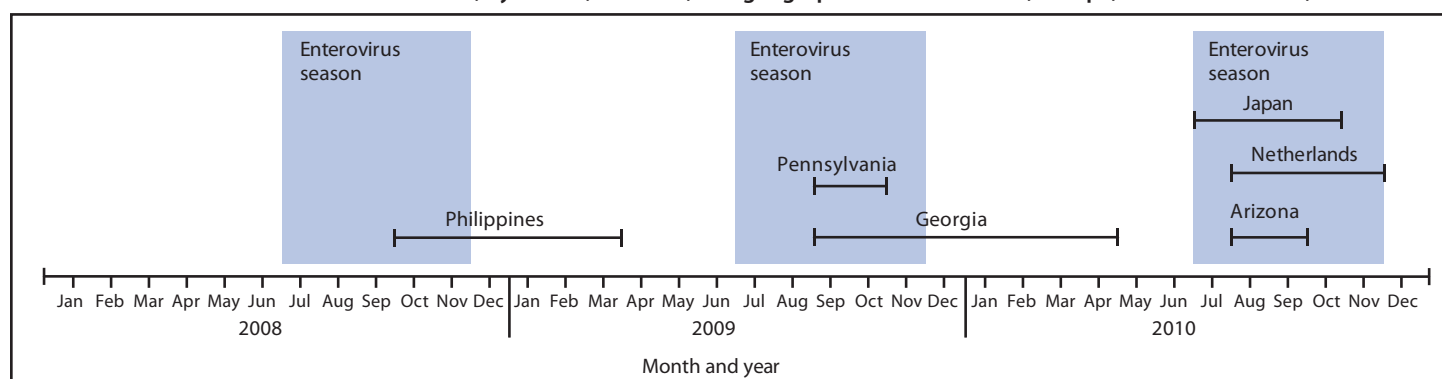
Laboratories using the CDC rhinovirus real-time RT-PCR assay (10) as originally described and as recently modified (forward primer 5'-CPA_{LNA}GCCT_{LNA}GCGTGGY-3') should be aware that it might misidentify HEV68 as an HRV and lacks the sensitivity to detect all HEV68 cases.

Clinicians should be aware of HEV68 as one of many causes of viral respiratory disease. Clusters of unexplained respiratory illness should be reported to the appropriate public health agency. Local or state health departments may contact the CDC for assistance with laboratory diagnostics or consultation through the Unexplained Respiratory Disease Outbreak network (<http://emergency.cdc.gov/urdo>).

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FIGURE. Occurrence of human enterovirus 68, by month, duration, and geographic location — Asia, Europe, and United States, 2008–2010



Current Cigarette Smoking Prevalence Among Working Adults — United States, 2004–2010

Cigarette smoking is among the most important modifiable risk factors for adverse health outcomes and a major cause of morbidity and mortality (1). Current cigarette smoking prevalence among all adults aged ≥ 18 years has decreased 42.4% since 1965, but declines in current smoking prevalence have slowed during the past 5 years (declining from 20.9% in 2005 to 19.3% in 2010) and did not meet the *Healthy People 2010* (HP2010) objective to reduce cigarette smoking among adults to $\leq 12\%$ (1–3). Targeted workplace tobacco control interventions have been effective in reducing smoking prevalence and exposure to secondhand smoke (4,5); therefore, CDC analyzed National Health Interview Survey (NHIS) data for 2004–2010 to describe current cigarette smoking prevalence among currently working U.S. adults by industry and occupation. This report describes the results of that analysis, which found that, overall, age-adjusted cigarette smoking prevalence among working adults was 19.6% and was highest among those with less than a high school education (28.4%), those with no health insurance (28.6%), those living below the federal poverty level (27.7%), and those aged 18–24 years (23.8%). Substantial differences in smoking prevalence were observed across industry and occupation groups. By industry, age-adjusted cigarette smoking prevalence among working adults ranged from 9.7% in education services to 30.0% in mining; by occupation group, prevalence ranged from 8.7% in education, training, and library to 31.4% in construction and extraction. Although some progress has been made in reducing smoking prevalence among working adults, additional effective employer interventions need to be implemented, including health insurance coverage for cessation treatments, easily accessible help for those who want to quit, and smoke-free workplace policies.

NHIS data are collected annually from a nationally representative sample of the noninstitutionalized U.S. population aged ≥ 18 years through a personal interview. One adult per family is selected randomly and asked to participate in the survey. The survey response rates ranged from 60.8% in 2010 to 72.5% in 2004. For this analysis, current cigarette smokers were defined as adults (aged ≥ 18 years) who reported having smoked ≥ 100 cigarettes during their lifetime and who currently smoke every day or some days. Survey participants were considered currently working if, when asked about their employment status during the week before their interview, they responded, “working at a job or business,” “with a job or

business but not at work,” or “working, but not for pay, at a family-owned job or business.”* Information on participants’ current industry and occupation was coded by trained coders and grouped into 21 industry groups and 23 occupation groups.†

To improve the precision and reliability of the estimates, CDC combined 7 years of NHIS data collected during 2004–2010. Sample weights were used to account for the complex sample design. Estimates were age-adjusted to the 2000 U.S. standard population consistent with HP2010 methodology.

During 2004–2010, of the estimated 223 million adults aged ≥ 18 years, 141 million (63.3%) were employed during the week before the interview. Current cigarette smoking prevalence among currently working adults decreased with increasing age ($p < 0.05$), with 23.8% among those aged 18–24 years and 10.2% among those aged ≥ 65 years. Age-adjusted prevalence was 19.6% for all currently working adults and was highest among males (21.5%), non-Hispanic whites (21.5%), those whose level of education was less than a high school diploma (28.4%), those living below the federal poverty level[§] (27.7%), and those with no health insurance coverage (28.6%) (Table 1).

Age-adjusted prevalence of current smoking in 18 of 21 industry groups and 17 of 23 occupation groups was higher than the HP2010 target of $\leq 12\%$ for smoking prevalence among all adults. Age-adjusted prevalence of current cigarette smoking was $> 29\%$ among workers in mining (30.0%), accommodation and food services (30.0%), and construction (29.7%) industry groups and among workers in construction and extraction (31.4%) and food preparation and serving-related (30.0%) occupation groups. The age-adjusted prevalence of current smoking was lowest among workers in the education services industry (9.7%) and among workers in the education, training, and library occupation (8.7%) (Table 2).

* Additional information about the NHIS questionnaire is available at http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm.

† Additional information about industry and occupation groups and codes are available at ftp://ftp.cdc.gov/pub/health_statistics/nchs/dataset_documentation/nhis/2009/samadult_layout.pdf and ftp://ftp.cdc.gov/pub/health_statistics/nchs/dataset_documentation/nhis/2008/naics_sectors_and_subsectors08.pdf.

§ Poverty status is based on family income and family size using the U.S. Census Bureau’s poverty thresholds for the previous calendar year. In NHIS, “poor” persons are defined as having incomes below the poverty threshold, “near poor” are defined as having incomes of 100% to less than 200% of the poverty threshold, and “not poor” are defined as having incomes that are 200% of the poverty threshold or greater. Additional information available at ftp://ftp.cdc.gov/pub/health_statistics/nchs/dataset_documentation/nhis/2008/srvydesc.pdf.

TABLE 1. Current cigarette smoking* prevalence among currently working† adults aged ≥18 years, by selected characteristics — National Health Interview Survey, 2004–2010

Characteristic	Currently working adults		Cigarette smoking prevalence [§]	
	Unweighted no.	Estimated no. (in millions)	%	(95% CI)
Age group (yrs)				
18–24	12,045	18.1	23.8	(22.8–24.9)
25–34	26,015	31.1	23.5	(22.8–24.2)
35–44	27,757	33.4	21.0	(20.3–21.6)
45–64	42,367	53.0	19.8	(19.2–20.3)
≥65	5,082	5.3	10.2	(9.2–11.1)
Sex				
Male	56,070	75.5	21.5	(21.0–22.0)
Female	57,196	65.4	17.4	(17.0–17.8)
Race/Ethnicity				
White, non-Hispanic	69,035	98.3	21.5	(21.1–22.0)
Black, non-Hispanic	16,645	15.8	17.9	(17.0–18.8)
Hispanic	21,017	19.3	14.2	(13.4–15.0)
Other	6,569	7.5	14.2	(13.0–15.4)
Education				
Less than high school diploma	13,868	15.1	28.4	(27.3–29.5)
High school/GED	29,164	37.3	27.1	(26.4–27.8)
Some college	34,807	43.5	21.0	(20.3–21.6)
Bachelor, masters, or higher degree	34,586	44.1	9.1	(8.7–9.6)
Unknown	841	1.0	20.4	(16.1–24.8)
Poverty status[¶]				
Poor	8,628	8.1	27.7	(26.2–29.1)
Near poor	15,411	16.5	26.3	(25.3–27.3)
Not poor	73,404	97.4	18.1	(17.7–18.5)
Unknown	15,823	19.0	19.1	(18.3–19.9)
Health insurance status				
Insured	91,240	115.7	17.5	(17.2–17.9)
Uninsured	21,673	24.7	28.6	(27.4–29.9)
Unknown	353	0.5	17.6	(12.2–22.9)
U.S. census region**				
Northeast	18,719	25.1	18.7	(17.7–19.6)
Midwest	26,151	34.8	21.7	(21.0–22.4)
South	41,422	50.3	20.8	(20.2–21.4)
West	26,974	30.7	15.9	(15.2–16.6)
Total	113,266		19.6	(19.2–20.0)

Abbreviations: CI = confidence interval; GED = General Educational Development certificate or diploma.

* Reported having smoked ≥100 cigarettes during their lifetime and currently smoking every day or some days. Current smoking prevalence in all adults (working and nonworking) was 19.3%.

† Estimated average annual number of adults who were employed during the week before interview.

§ Estimates were age-adjusted using the 2000 U.S. population as the standard population and five age groups: 18–24, 25–34, 35–44, 45–64, and ≥65 years. Estimates by education status were adjusted using four age groups: 18–24, 25–44, 45–64, and ≥65 years.

¶ Poverty status is based on family income and family size using the U.S. Census Bureau's poverty thresholds for the previous calendar year. "Poor" persons are defined as below the poverty threshold. "Near poor" persons have family incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have family incomes that is 200% of the poverty threshold or greater. Additional information available at [ftp://ftp.cdc.gov/pub/health_statistics/nchs/dataset_documentation/nhis/2008/srvydesc.pdf](http://ftp.cdc.gov/pub/health_statistics/nchs/dataset_documentation/nhis/2008/srvydesc.pdf).

** *Northeast:* Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming.

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Editorial Note

Current smoking prevalence (unadjusted) among currently working adults aged ≥18 years declined from 27.8% during 1987–1994 to 24.5% during 1997–2004 (6). This report indicates that although slight declines in smoking prevalence have occurred since 1997–2004 among currently working adults, the prevalence of smoking remains higher (21.0%

TABLE 2. Current cigarette smoking* prevalence among currently working† adults aged ≥18 years, by industry and occupation group — National Health Interview Survey, 2004–2010

Industry/Occupation group	Currently working adults		Age-adjusted [§] current cigarette smoking prevalence	
	Unweighted no.	Estimated no. (in millions)	%	(95% CI)
Industry group				
Mining	455	0.6	30.0	(24.6–35.4)
Accommodation and food services	6,906	8.4	30.0	(28.3–31.6)
Construction	7,883	10.5	29.7	(28.3–31.1)
Administrative and support and waste management and remediation services	4,905	5.8	24.5	(22.9–26.1)
Transportation and warehousing	4,636	5.8	24.3	(22.5–26.1)
Real estate and rental and leasing	2,369	2.9	23.4	(21.0–25.7)
Manufacturing	11,538	14.9	23.2	(21.8–24.5)
Retail trade	11,192	14.6	23.1	(22.0–24.2)
Wholesale trade	3,026	3.9	22.0	(19.8–24.2)
Arts, entertainment, and recreation	2,168	2.7	19.8	(17.8–21.8)
Utilities	915	1.2	19.4	(15.7–23.0)
Agriculture, forestry, fishing, and hunting	1,623	2.0	18.5	(16.1–20.9)
Other services (except public administration)	5,720	6.9	18.2	(17.0–19.5)
Information	2,684	3.4	16.5	(14.8–18.2)
Health care and social assistance	14,940	17.3	15.9	(15.1–16.7)
Public administration	5,701	6.9	14.9	(13.4–16.4)
Professional, scientific, and technical services	6,878	8.9	14.0	(12.8–15.2)
Finance and insurance	5,154	6.4	13.9	(12.6–15.1)
Management of companies and enterprises	70	0.1	10.9	(3.3–18.4)
Education services	10,591	13.2	9.7	(9.0–10.4)
Armed forces	92	0.1	— [¶]	— [¶]
Unknown**	3,820	4.3	13.2	(11.5–14.9)
Occupation group				
Construction and extraction	6,370	8.4	31.4	(29.7–33.1)
Food preparation and serving related	5,728	7.0	30.0	(28.4–31.7)
Transportation and material moving	6,339	8.1	28.7	(27.2–30.2)
Installation, maintenance, and repair	3,652	5.0	27.2	(25.3–29.2)
Production	7,317	9.0	26.1	(24.6–27.7)
Health-care support	2,868	3.1	23.7	(21.6–25.9)
Building and grounds cleaning and maintenance	4,912	5.5	22.9	(21.2–24.5)
Sales and related	11,308	14.6	20.7	(19.7–21.7)
Farming, fishing, and forestry	858	1.0	20.1	(16.4–23.7)
Personal care and service	3,781	4.3	19.7	(18.3–21.2)
Office and administrative support	15,286	18.5	19.0	(18.2–19.8)
Protective service	2,241	2.8	16.4	(14.4–18.4)
Management	9,873	13.2	16.3	(15.2–17.4)
Arts, design, entertainment, sports, and media	2,156	2.7	14.9	(12.9–17.0)
Business and financial operations	4,818	5.9	14.1	(12.7–15.5)
Architecture and engineering	1,974	2.7	13.6	(11.5–15.6)
Computer and mathematical	2,847	3.6	12.8	(10.1–15.6)
Health-care practitioners and technical	5,720	7.0	11.8	(10.7–12.9)
Community and social services	1,972	2.3	10.9	(9.0–12.7)
Legal	1,231	1.6	9.4	(7.4–11.5)
Life, physical, and social science	1,117	1.4	9.2	(7.1–11.2)
Education, training, and library	6,965	8.9	8.7	(7.9–9.5)
Military	97	0.1	— [¶]	— [¶]
Unknown**	3,836	4.4	13.0	(11.3–14.7)

Abbreviations: CI = confidence interval; GED = General Educational Development certificate or diploma.

* Reported having smoked ≥100 cigarettes during their lifetime and currently smoking every day or some days.

† Estimated average annual number of adults who were employed during the week before interview.

§ Adjusted to the 2000 U.S. standard population using four age groups: 18–24, 25–34, 35–44, 45–64, and ≥65 years.

¶ Estimates suppressed because relative standard error for estimate was >30%.

** Don't know, refused, and not ascertained responses.

[crude rate] and 19.6% [age-adjusted rate]) than the HP2010 target of ≤12% for all U.S. adults. In the majority of the occupation and industry groups examined in this report, the

age-adjusted prevalence of current smoking among currently working adults also exceeded the HP2010 target of ≤12%. Workers in construction and extraction trades and food service

What is already known on this topic?

Smoking prevalence varies by occupation among U.S. working adults. Targeted workplace tobacco control interventions have been effective in reducing smoking prevalence and exposure to secondhand smoke.

What is added by this report?

This report provides information on age-adjusted cigarette smoking prevalence among currently working adults aged ≥ 18 years for 2004–2010. Age-adjusted current smoking prevalence varied by industry and occupation group. The highest prevalence of smoking was observed among workers in mining, accommodation and food services, and construction industries, and among workers in construction and extraction occupation groups. The age-adjusted prevalences among specific occupations and industries were nearly two and a half times higher than the target of the *Healthy People 2010* objective to reduce cigarette smoking among adults to $\leq 12\%$.

What are the implications for public health practice?

Employers, businesses, trade associations, and worker representatives need to work in partnership with their state and local health departments in implementing evidence-based policies and programs to reduce the prevalence of smoking among the working population.

occupations continue to have the highest smoking prevalence (6). Higher levels of smoking were observed among workers aged 18–24 years, male workers, those with high school or less education, those with no health insurance coverage, and those living below the federal poverty level. Similar findings of higher cigarette smoking prevalences in these specific groups have been reported among the overall U.S. adult population (2).

During 2000–2004, cigarette smoking and exposure to tobacco smoke resulted in approximately 443,000 premature deaths, \$97 billion in productivity losses, and \$96 billion in health-care costs annually (7). Smoking increases the adverse health risks of occupational exposure; for example, a 50-fold increase in lung cancer incidence was reported among smokers who were exposed to asbestos (6). Smoking in the workplace not only affects the individual's health but also exposes coworkers to secondhand smoke. Homes and workplaces are the predominant locations for exposure to secondhand smoke (7). Exposure to secondhand smoke causes lung cancer, heart disease, and respiratory illnesses (7,8). Although workplace policies or exposures to secondhand smoke were not assessed in this study, national surveys have shown that the proportion of smoke-free worksites was lower in agriculture, forestry, fishing, mining, and construction and higher in professional and related services (7).

Several intervention and prevention measures have been shown to be effective in reducing smoking prevalence and exposure to secondhand smoke (1,4,8). Such measures

include smoke-free workplace policies; individual, group, and telephone-based smoking cessation counseling; cessation medications; tailored print or web-based cessation materials; and comprehensive insurance coverage for effective cessation treatments (1,4,8,9). These proven effective interventions should be strengthened, specifically in workplaces with higher smoking prevalences. To reduce smoking among their workers, employers should ensure that effective tobacco dependence treatments (counseling and medication) are a part of the basic benefits package for all health insurance plans that cover their employees (9). The benefits should include all seven of the cessation medications approved by the Food and Drug Administration (FDA) as well as group, individual, and telephone counseling, with no copayments or other utilization restrictions (9). The Patient Protection and Affordable Care Act of 2010 requires new private health insurance plans to offer their members evidence-based smoking cessation services without cost-sharing and should result in increased cessation among working adults.[‡] Employers should educate all employees about the availability of these treatments and encourage their use. In addition, employers, businesses, trade associations, and worker representatives should work together with their state and local health departments in implementing policies and programs to reduce smoking prevalence among the working population.

Providing coverage for tobacco dependence treatment will increase access to services, which will improve the health of employees and result in lower rates of absenteeism and lower utilization of health care resources (9). Workplace interventions also can be tailored to the interests, challenges, and needs of particular industry or occupation groups, and these can be combined with incentives to reduce tobacco use among workers (e.g., by offering rewards to individual workers and to teams as a motivation to participate in a cessation program) (1,4,8). Results from this report help identify industry and occupation groups with high smoking prevalence that are in need of targeted smoking cessation programs, especially among those industry and occupation groups with a relatively large population of workers that otherwise might not be reached (e.g., younger men, who generally are less likely to visit a physician or participate in health promotion activities available at primary-care centers) (4).

The findings in this report are subject to at least three limitations. First, the collected employment information applied only to the week before the interview. Some workers might have changed jobs and thus might have been in a different occupation or industry before the time of the survey. However, CDC conducted additional analyses examining longest held

[‡] Additional information available at <http://www.dol.gov/ebsa/healthreform>.

job and found similar results (i.e., higher smoking prevalences in mining and construction industries and in construction and extraction occupations). Second, the data in this report represent major industry/occupation groups, which limits identification of specific industries and occupations associated with cigarette smoking. Finally, the extent of underreporting or overreporting of cigarette smoking could not be determined because smoking information was self-reported and was not validated by biochemical tests. However, comparison of self-reported smoking status with results of measured serum cotinine levels suggests generally high levels of validity and results in similar population estimates (10).

To maximize the health of employees, employers need to integrate comprehensive and effective smoking cessation programs with other worksite programs including health promotion programs in their workplace (8). Smoke-free workplace policies also increase cessation among employees who smoke (8). Comprehensive smoking cessation program benefits should be offered and promoted to increase awareness and program utilization by employees and other enrollees, and the benefits of use of such programs should be monitored and evaluated. CDC's *A Practical Guide to Working with Health-Care Systems on Tobacco-Use Treatment*** provides key information and practical advice to help public health professionals and employers improve their understanding of health-care systems, improve availability and use of evidence-based tobacco dependence treatments by employees, and increase smoking cessation. In January 2011, the Federal Employees Health Benefits (FEHB) Program began offering expanded tobacco cessation interventions to nearly 8 million federal employees, retirees, dependents, and spouses.†† The program includes all seven FDA-approved cessation medications as well as individual, group, and telephone counseling, with no copayments, coinsurance, or deductibles. It will cover at least two quit attempts per year, with a minimum of four counseling sessions of at least 30 minutes for each attempt. The FEHB coverage requirements can be used as a model for other public and private insurance plans for implementation of comprehensive cessation coverage.

** Available at http://www.cdc.gov/tobacco/quit_smoking/cessation/practical_guide/index.htm.

†† Additional information available at http://www.opm.gov/carrier/carrier_letters/2010/2010-06.pdf.

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Severe Illness from 2009 Pandemic Influenza A (H1N1) — Utah, 2009–10 Influenza Season

Influenza-associated hospitalizations have been a reportable condition in Utah since 2005, and surveillance for influenza hospitalizations has been a valuable tool for identifying and tracking the population impact of serious influenza illness. During the 2009 influenza A (H1N1) pandemic, Utah public health officials used comparisons with hospitalization data from three previous influenza seasons to rapidly assess the impact of 2009 H1N1 and enable public health authorities to target persons at greatest risk for severe illness. This report summarizes the results of that assessment, which determined that 1,327 2009 H1N1 hospitalizations were reported, compared with an average of 435 seasonal influenza hospitalizations during three previous influenza seasons, and 25.5% of 2009 H1N1 hospitalizations resulted in severe illness (intensive-care unit [ICU] admission or death), compared with 14.0% of seasonal influenza hospitalizations. In addition, 2009 H1N1 disproportionately affected racial/ethnic minorities, pregnant women, and residents of Salt Lake County (the state's most densely populated county). During the 4-month "spring wave" of the H1N1 pandemic, a greater percentage of hospitalizations (30.9%) resulted in severe illness than during the 9-month "fall wave" (23.0%). Surveillance for influenza hospitalizations can provide essential data to public health authorities that will help them identify those populations at greatest risk for severe illness.

All confirmed and probable influenza-associated hospitalizations* reported by infection-prevention programs and laboratories in the state from April 27, 2009, to May 21, 2010, were analyzed by the Utah Department of Health. Because subtyping data from the Unified State Laboratory: Public Health indicated that 99% of all circulating influenza viruses were 2009 H1N1, all influenza hospitalizations during this period were considered to have resulted from pandemic influenza. Pandemic hospitalizations were compared with confirmed and probable seasonal influenza-associated hospitalizations reported during three previous influenza seasons (2005–06, 2006–07, and 2007–08). Data from the 2008–09 influenza season were not used because of overlap with the 2009 H1N1 spring wave. Additionally, cases occurring during the 4-month 2009 H1N1 spring wave (April 27, 2009–August 29, 2009) were compared with cases during the 9-month "fall wave"

(August 30, 2009–May 21, 2010). Data collected by medical chart reviews and investigations by local health department personnel included demographic information, illness onset dates, laboratory results, comorbid conditions, and number of severe illnesses (defined as ICU admission or death) among persons hospitalized. In this analysis, racial/ethnic minorities were defined as all persons who were not non-Hispanic whites.

Rates were calculated using the total state population as a denominator. Chi-square tests were used to assess the significance of differences between 2009 H1N1 and seasonal hospitalizations by illness severity, race/ethnicity, county of residence, age group, and comorbid conditions and to assess the differences between spring and fall waves of 2009 H1N1 hospitalizations by illness severity, race/ethnicity, county of residence, and age group.

During the 2009 H1N1 pandemic, 1,327 influenza hospitalizations were reported; 423 (15.6 cases per 100,000 persons) were reported during the 4-month spring wave, and 904 (32.8 cases per 100,000) during the 9-month fall wave (Table 1). By comparison, an average of 435 influenza hospitalizations (range: 281–511) (15.8 cases per 100,000) were reported during three previous influenza seasons (Figure). During the 2009 H1N1 pandemic period (April 27, 2009 to May 21, 2010), hospitalization rates, by age group, were as follows: 105.4 cases per 100,000 among persons aged 0–4 years, 40.5 among those aged 5–24 years, 38.0 among those aged 25–49 years, 55.3 among those aged 50–64 years, and 45.3 among those aged ≥65 years. By comparison, average hospitalization rates for the three previous seasons for these age groups were, 57.2, 5.7, 5.6, 12.1, and 55.5 cases per 100,000 population, respectively.

Pandemic H1N1 influenza resulted in more severe illness than seasonal influenza, with 25.5% of pandemic hospitalizations resulting in death or ICU admission, compared with 14.0% of seasonal hospitalizations during the 2007–08 influenza season ($p < 0.01$) (Table 2). Severity increased with age. The percentage of 2009 H1N1 hospitalizations resulting in severe illness ranged from 12.2% among children aged 0–4 years to 42.2% among adults aged ≥65 years. The percentage of 2009 H1N1 hospitalizations resulting in death was zero among persons aged 0–4 years, 2.4% among those aged 5–24 years, 5.2% among those aged 25–49 years, 5.7% among those aged 50–64 years, and 8.1% among those aged ≥65 years. Additionally, hospitalized adults aged ≥65 years were more likely to experience severe disease from 2009 H1N1 (42.2%)

* A confirmed influenza-associated hospitalization was defined as hospitalization for ≥24 hours with a positive result for influenza infection by viral culture, viral nucleic acid test, or direct fluorescent antibody microscopy. A probable influenza-associated hospitalization was defined as hospitalization for ≥24 hours with a positive result for influenza infection from a rapid influenza test.

TABLE 1. Number and percentage of seasonal influenza hospitalizations and 2009 pandemic influenza A (H1N1) hospitalizations, by selected patient characteristics and 2009 H1N1 wave — Utah, 2005–2008 and 2009–2010

Characteristic	Seasonal influenza hospitalizations		2009 H1N1 hospitalizations		p value	2009 H1N1 spring wave [†] hospitalizations		2009 H1N1 fall wave [§] hospitalizations		p value
	No.*	(%)	No.	(%)		No.	(%)	No.	(%)	
Age group (yrs)										
0–4	151	(34.7)	280	(21.0)	<0.01	94	(22.2)	186	(20.5)	0.49
5–24	52	(12.0)	364	(27.4)	<0.01	118	(27.9)	246	(27.2)	0.79
25–49	52	(12.0)	362	(27.3)	<0.01	120	(28.4)	242	(26.8)	0.54
50–64	46	(10.6)	210	(15.8)	<0.01	58	(13.7)	152	(16.8)	0.15
≥65	134	(30.8)	111	(8.4)	<0.01	33	(7.8)	78	(8.6)	0.61
County of residence										
Salt Lake County	154	(35.4)	580	(43.7)	<0.01	272	(64.3)	308	(34.1)	<0.01
Other Utah counties	281	(64.6)	747	(56.3)		151	(35.7)	596	(65.9)	
Race/Ethnicity										
Salt Lake County										
White, non-Hispanic	98	(71.0)	346	(63.5)	0.01	130	(53.5)	216	(71.5)	<0.01
Minorities [¶]	40	(29.0)	199	(36.5)		113	(46.5)	86	(28.5)	
Total	138	(100.0)	545	(100.0)		243	(100.0)	302	(100.0)	
Other Utah counties										
White, non-Hispanic	241	(81.1)	475	(76.7)	<0.01	80	(72.1)	395	(77.8)	0.20
Minorities	56	(18.9)	144	(23.3)		31	(27.9)	113	(22.2)	
Total	297	(100.0)	619	(100.0)		111	(100.0)	508	(100.0)	
All Utah counties										
White, non-Hispanic	339	(78.0)	821	(70.5)	<0.01	210	(59.3)	611	(75.4)	<0.01
Minorities	96	(22.0)	343	(29.5)		144	(40.7)	199	(24.6)	
Total	435	(100.0)	1,327	(100.0)		423	(100.0)	904	(100.0)	
High-risk categories**										
Aged <5 or ≥65 yrs	276	(63.4)	391	(29.5)	<0.01	—	—	—	—	—
Pregnant	12	(2.5)	81	(6.3)	<0.01	—	—	—	—	—
Respiratory disorder	94	(21.6)	477	(36.9)	<0.01	—	—	—	—	—
Heart/Kidney/ Metabolic disorder	139	(32.0)	367	(28.3)	0.08	—	—	—	—	—
Immunosuppressed	56	(12.9)	216	(16.8)	0.02	—	—	—	—	—
Any comorbidity	218	(50.1)	791	(61.6)	<0.01	—	—	—	—	—
Aged <5 or ≥65 yrs and/or comorbidity	371	(85.3)	1002	(77.1)	<0.01	—	—	—	—	—

* Annual average for 2005–06, 2006–07, and 2007–08 influenza seasons, with the exception of high-risk categories.

[†] April 27–August 29, 2009.

[§] August 30, 2009–May 21, 2010.

[¶] All persons not non-Hispanic white.

** Seasonal data are from 2006–07 and 2007–08 influenza seasons combined. Categories are not mutually exclusive.

than from seasonal influenza in 2007–08 (21.0%) ($p<0.01$). Overall, the percentage of 2009 H1N1 hospitalizations resulting in severe illness was significantly greater during the spring wave (30.9%) than the fall wave (23.0%) ($p<0.01$) (Table 2).

Of 2009 H1N1 hospitalizations with race/ethnicity reported, 29.5% of cases occurred among minorities, who make up 18.6% of the state population, compared with an average of 22.0% of cases during the three previous influenza seasons ($p<0.01$) (Table 1). Of spring wave H1N1 hospitalizations with known race/ethnicity, 40.7% occurred in minorities, compared with 24.6% of fall wave hospitalizations ($p<0.01$). Race/ethnicity data were missing for 12.3% of 2009 H1N1 hospitalizations and for an average of 12.6% of influenza hospitalizations during the three previous seasons.

A significantly greater percentage of all Utah 2009 H1N1 hospitalizations were among residents of Salt Lake County (43.7%), compared with hospitalizations for seasonal influenza during 2005–2008 (35.4%) ($p<0.01$) (Table 1). The largest county in the state, Salt Lake County includes 37% of the state population (1). However, the excess of 2009 H1N1 hospitalizations in Salt Lake County occurred only during the spring wave (64.3% versus 35.7% in other counties); the opposite was observed during the fall wave (34.1% versus 65.9% in other counties). By race/ethnicity, 36.5% of 2009 H1N1 hospitalizations in Salt Lake County occurred among minorities, who represent 24.8% of the county population (1), compared with 29.0% of seasonal hospitalizations (Table 1). This disparity also was limited to the H1N1 spring wave. When

FIGURE. Number of influenza hospitalizations, by surveillance week and pandemic influenza A (H1N1) wave — Utah, 2005–2010 influenza seasons

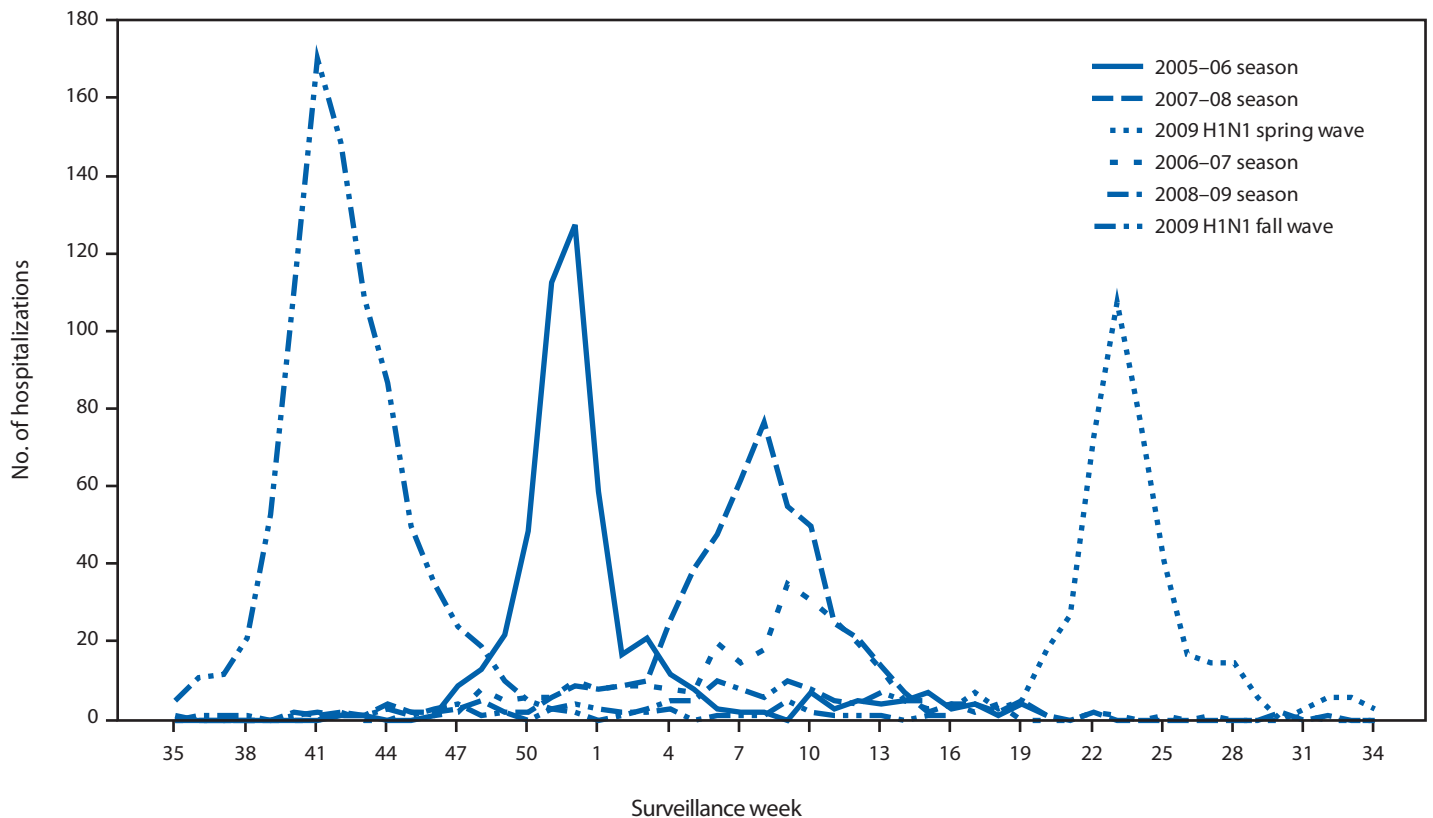


TABLE 2. Number and percentage of seasonal influenza hospitalizations* and 2009 pandemic influenza A (H1N1) hospitalizations resulting in severe illness (intensive-care unit [ICU] admission or death),† by patient age group and 2009 H1N1 wave — Utah, 2007–08 and 2009–10 influenza seasons

Age group (yrs)	Seasonal influenza hospitalizations			2009 H1N1 hospitalizations			p value	2009 H1N1 spring wave [§] hospitalizations			2009 H1N1 fall wave [¶] hospitalizations			p value
	Total	Severe illness		Total	Severe illness			Total	Severe illness		Total	Severe illness		
		No.	(%)		No.	(%)			No.	(%)		No.	(%)	
0–4	151	12	(7.9)	278	34	(12.2)	0.16	93	13	(14.0)	185	21	(11.4)	0.53
5–24	52	3	(5.8)	361	68	(18.8)	0.02	115	31	(27.0)	246	37	(15.0)	0.01
25–49	53	7	(13.5)	355	112	(31.5)	0.01	113	43	(38.1)	242	69	(28.5)	0.07
50–64	46	11	(23.9)	208	74	(35.6)	0.15	56	26	(46.4)	152	48	(31.6)	0.05
≥65	136	28	(21.0)	109	46	(42.2)	<0.01	31	13	(41.9)	78	33	(42.3)	0.97
Total	439	61	(14.0)	1,311	334	(25.5)	<0.01	408	126	(30.9)	903	208	(23.0)	<0.01

* Seasonal data from 2007–08 influenza season.

† Excludes hospitalizations for which information about ICU admission was not available.

§ April 27–August 29, 2009.

¶ August 30, 2009–May 21, 2010.

analyzed by census tract, 70% of spring wave 2009 H1N1 hospitalizations were among residents of census tracts with at least a 25% minority population, including one census tract with an 83% minority population. In contrast, only 36% of fall wave H1N1 hospitalizations were among residents of census tracts with at least a 25% minority population.

Among patients hospitalized with seasonal influenza during the combined 2006–07 and 2007–08 influenza seasons, 63.4% were at high risk for complications because of age (i.e., <5 years or ≥65 years), compared with 29.5% of patients hospitalized with 2009 H1N1 (Table 1). Among all hospitalized 2009 H1N1 patients, 6.3% were pregnant women, compared with

What is already known on this topic?

2009 pandemic influenza A (H1N1) produced substantial morbidity and mortality throughout the United States and the world.

What is added by this report?

In Utah, compared with seasonal influenza, 2009 H1N1 caused more severe illness, a geographically concentrated outbreak, and disproportionate hospitalization among minorities, particularly during the 2009 H1N1 "spring wave."

What are the implications for public health practice?

Hospital surveillance for influenza, both seasonal and pandemic, provides valuable information on populations severely affected by influenza. States that make influenza-associated hospitalizations a reportable condition can gain information useful for targeting influenza control activities.

2.5% of those hospitalized with seasonal influenza (Table 1). When comorbidity[†] was considered, 61.6% of hospitalized 2009 H1N1 patients were at high risk for complications because of comorbidities, compared with 50.1% of patients hospitalized with seasonal influenza (Table 1).

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Editorial Note

Influenza-associated hospitalizations have been reportable in Utah since 2005, and these reports have been beneficial for tracking seasonal influenza. When 2009 H1N1 pandemic influenza was first identified, a reporting system was already in place in Utah, and partners throughout the state were familiar with data collection and reporting procedures. Data on 2009 H1N1 became rapidly available to public health officials and provided valuable insights into disparities among those populations at greatest risk for severe disease. For example, during the spring wave of the pandemic, public health authorities were able to respond with messages in Spanish to persons in the Hispanic population, who make up the largest proportion of the state's minorities and who were experiencing a disproportionate number of hospitalizations from 2009 H1N1. Additionally, Utah health officials were

able to use state-specific hospitalization data to support recommendations regarding vaccination. Surveillance data also allowed officials to communicate the importance of early initiation of antiviral therapy among hospitalized patients, persons in populations at high risk, and health-care providers.

Utah's surveillance data underscored the wide differences between the 2009 H1N1 pandemic and three recent influenza seasons. Whereas the number of patients hospitalized in Utah during the 2009 H1N1 spring wave was about the same as the number hospitalized for the entire 2007–08 influenza season, the fall wave more than doubled the number hospitalized during the spring wave. Early in the spring wave, public health professionals observed that persons in age groups not typically considered at increased risk for severe disease were being hospitalized in greater numbers than those historically at increased risk (i.e., children aged <5 years and adults aged ≥65 years) in Utah and elsewhere in the United States (2–5). However, although adults aged ≥65 years represented a lower percentage of hospitalizations during pandemic influenza than they did for seasonal influenza in 2007–08, those hospitalized for 2009 H1N1 were significantly more likely to have severe disease than those hospitalized with seasonal influenza.

Although severe illness was more common among patients hospitalized with 2009 H1N1 than seasonal influenza, the percentage of persons hospitalized in Utah with severe illness from 2009 H1N1 was similar to findings reported in published studies that found 20%–31% of spring pandemic hospitalizations required ICU admission (2–5). A decrease in the percentage of hospitalizations with severe illness was seen between the two 2009 H1N1 waves, although both spring and fall waves had greater percentages of severe illness than the 2007–08 influenza season.

The findings in this report are subject to at least two limitations. First, incomplete information in medical charts might have led to the underreporting of some underlying illnesses. Second, data on hospitalized patients only reflects events recorded in the medical record as of the time of data abstraction. Indicators of severe illness (death or ICU admission) that occurred after investigations were completed are not represented in the data. However, unrecognized illness severity was unlikely to have a significant effect on the data, because most case investigations were completed after patients were discharged.

Although Utah data showed minorities had disproportionately greater percentages of hospitalizations from 2009 H1N1 influenza, a trend also noted nationally (6,7), this finding was confined to the spring wave in Utah, when the majority of cases were in Salt Lake County, where 50.0% of the minority population in Utah lives (1). Health authorities could not determine whether the greater percentages of hospitalizations

[†] Comorbid conditions include pregnancy, immunosuppression, and chronic cardiovascular, renal, metabolic, or respiratory conditions.

resulted from greater influenza transmission in areas with high minority population or from more severe disease in members of minority populations.

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Utah's local health departments and Unified State Laboratory: Public Health.

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Progress in Implementing Measles Mortality Reduction Strategies — India, 2010–2011

In 2005, an estimated 92,000 deaths occurred in India from measles among children aged <5 years (1). Estimates from 2008 indicate that 77% of global measles mortality was attributable to measles deaths in the World Health Organization (WHO) South-East Asia Region, the majority of which occurred in India (2,3). These figures highlight the importance of India in attaining regional and global measles mortality reduction targets. In 2008, the Indian National Technical Advisory Group on Immunization (NTAGI) recommended introduction of a second dose of measles-containing vaccine (MCV2), delivered through routine vaccination in states with $\geq 80\%$ coverage with the first dose of measles-containing vaccine (MCV1), or through mass vaccination campaigns in states with <80% MCV1 coverage. Based on these recommendations, the government of India initiated MCV2 introduction in late 2010. This report provides an update on MCV1 coverage, progress in implementing MCV2, and measles outbreak surveillance activities conducted in eight states during 2006–2010. India has initiated implementation of a measles mortality reduction strategy, but the pace of implementation is variable across states. Strong national and state leadership and commitment to rapid reduction of measles mortality are essential to achieve the full benefits of this strategy.

Routine MCV1 coverage

In 1985, MCV1 was introduced in the India Expanded Program on Immunization, with a recommended age for vaccination of 9–12 months. Estimated national routine MCV1 coverage was 74% among children aged 12–23 months based on the UNICEF-sponsored national Coverage Evaluation Survey (CES) of 2009 (4); state-level MCV1 coverage ranged from 48% to 96%.^{*} District level data from the District Level Household and Facility Survey conducted during 2007–2008 (DLHS-3) indicated that MCV1 coverage was $\geq 90\%$ in 26% of the evaluated districts (Figure 1).

MCV2 introduction

Based on NTAGI recommendations, 17 states[†] with MCV1 coverage $\geq 80\%$ (according to DLHS-3 data) had introduced single antigen measles vaccine as MCV2 through routine vaccination services during May 2010–August 2011. Four

states[§] with MCV1 coverage $\geq 80\%$ had introduced measles, mumps, and rubella vaccine as MCV2 before 2008.

Fourteen states[¶] with <80% MCV1 coverage have started introducing MCV2 through mass vaccination campaigns using single antigen measles vaccine and targeting children aged 9 months–10 years (Figure 2). The target age group for campaigns was based on age distribution of cases reported through the measles outbreak surveillance system and investigation of several outbreaks in other states. An estimated 134 million children are targeted to receive MCV2 in these states in phases during 2010–2012. The first phase was conducted during September 2010–July 2011. By selecting a limited number of districts, the first phase was intended to establish best practices and document lessons learned for conducting subsequent larger phases of measles vaccination campaigns in India. The second phase will target 144 districts during September–December 2011. In 2012, a total of 172 districts are expected to be covered. In addition, campaign districts will introduce MCV2 through routine vaccination 6 months after completion of campaign activities.

Results of Phase 1 MCV2 campaigns

During the first phase of MCV2 campaigns, 12,076,836 children were vaccinated in 45 districts of 13 states (all targeted states except Uttar Pradesh). Overall reported administrative coverage^{**} was 86% and exceeded 90% in 18 (40%) of 45 districts. Rapid convenience assessments were conducted by independent monitors during and after the campaign to validate vaccination coverage and assess campaign quality.^{††} In total, 10,926 areas were assessed, and the campaign vaccination status of 217,512 target-aged children was verified in 43 of 45 districts. Of the assessed areas, 3,946 (36%) had $\geq 90\%$ children vaccinated, and 3,358 (31%) areas had <80% campaign targeted children vaccinated. In total, 183,965 (85%) of all the assessed children were vaccinated. The most common reasons for nonvaccination,

[§] Delhi, Goa, Sikkim, and the Union Territory of Pondicherry.

[¶] Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Rajasthan, Tripura, and Uttar Pradesh.

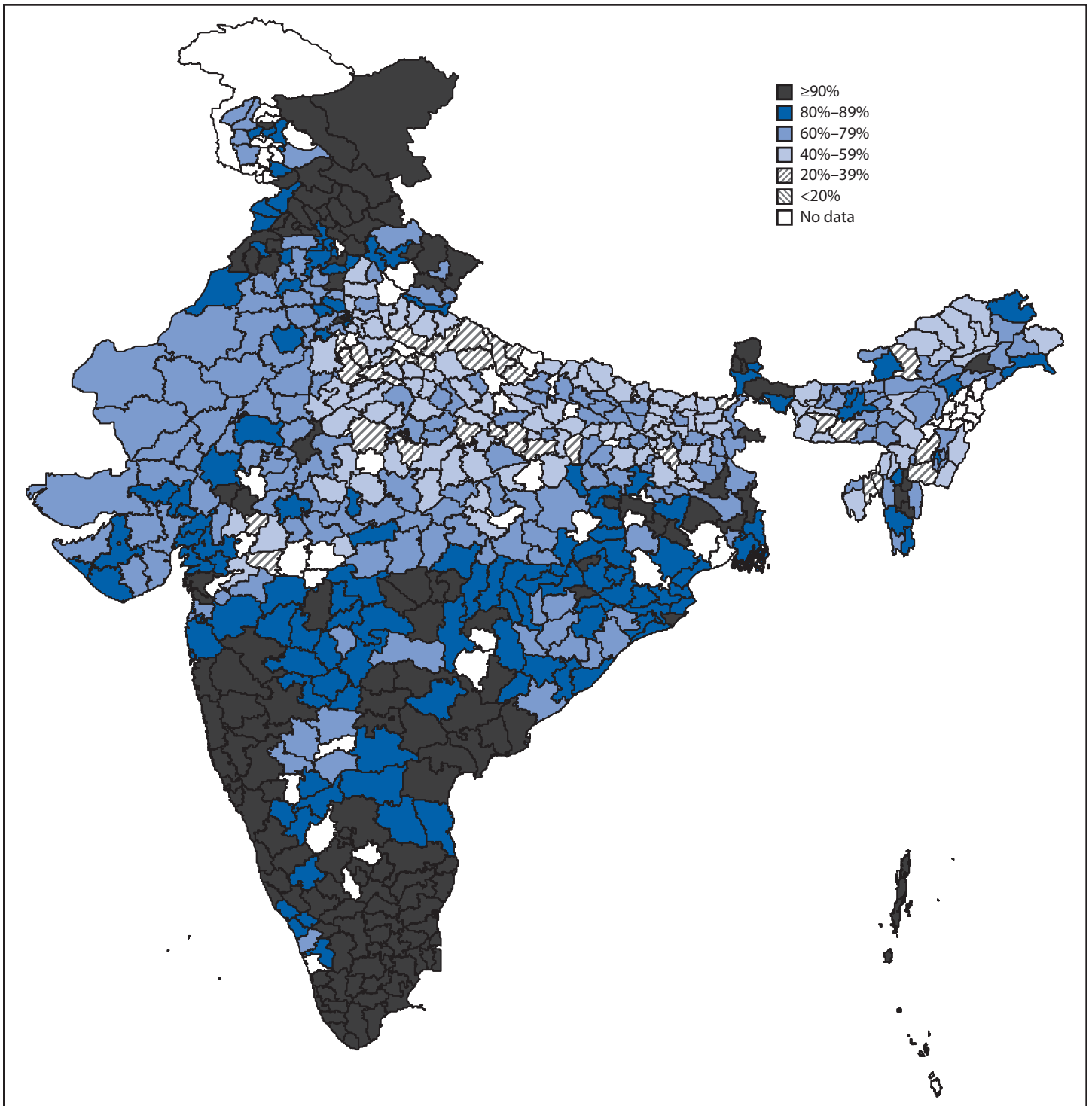
^{**} Administrative coverage is calculated by dividing the number of doses administered by the number of persons in the target population.

^{††} Rapid convenience assessments target identified high-risk populations and areas. In selected areas, 20 households with target-aged children are visited, the campaign vaccination status of children is verified, and reasons for nonvaccination are elicited for unvaccinated children. Unvaccinated children are referred to the nearest vaccination sites. If two or more unvaccinated children are reported from a given area, supervisors are informed, and remedial action is taken.

^{*} India is comprised of 29 states and six Union Territories.

[†] Andaman and Nicobar Islands, Andhra Pradesh, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Lakshadweep, Maharashtra, Mizoram, Orissa, Punjab, Tamil Nadu, Uttarakhand, and West Bengal.

FIGURE 1. Coverage with 1 dose of measles-containing vaccine among children aged 12–23 months, by district — India, 2007–2008*



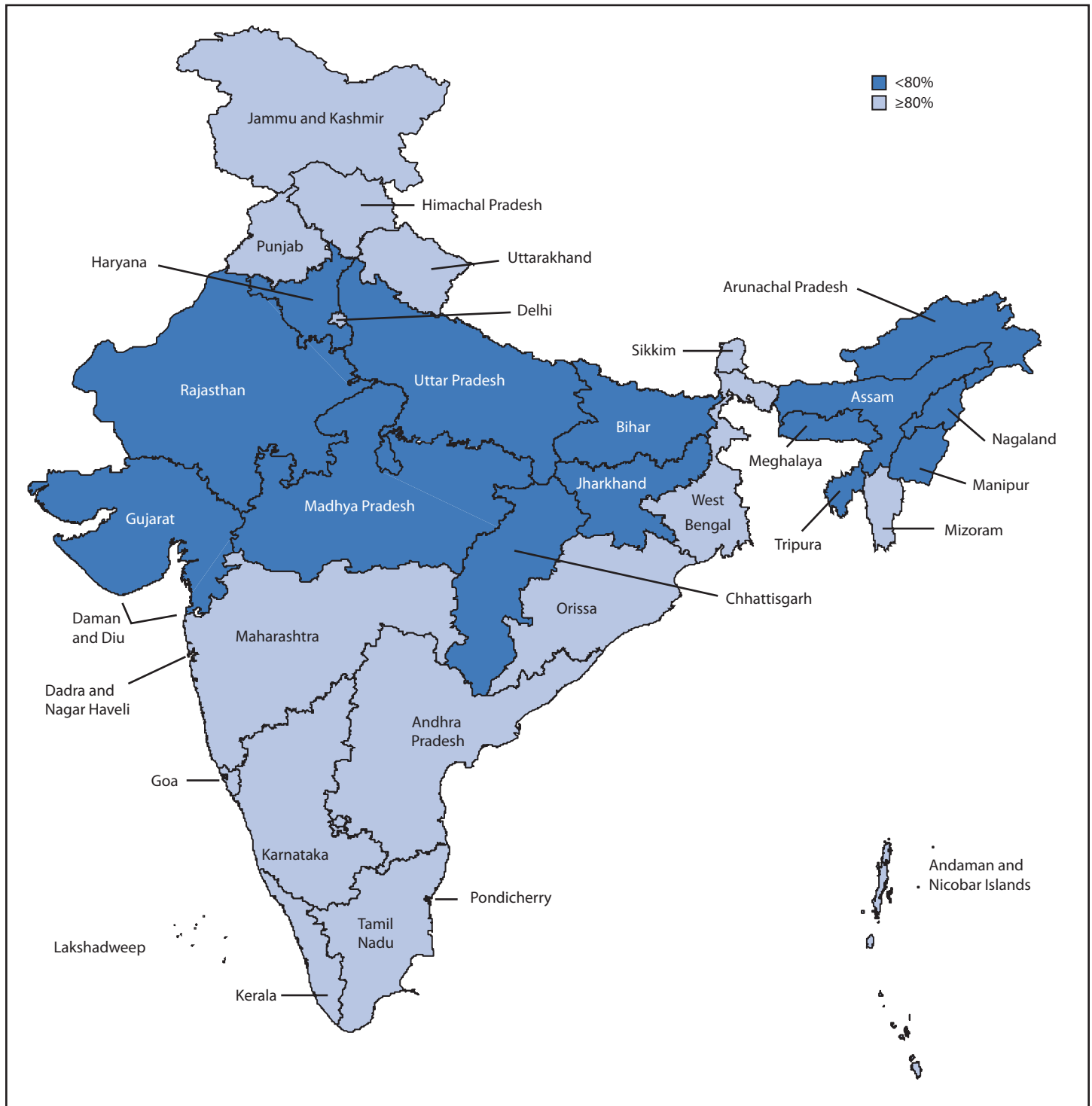
* Data are from the District Level Household and Facility Survey 2007–2008.

cited by nearly half (48%) of caretakers, were lack of knowledge about 1) the campaign, 2) the location of vaccination sites, or 3) the perceived importance of the activity. No deaths related to adverse events after vaccination were reported.

Measles outbreak surveillance

Laboratory-supported measles outbreak surveillance was initiated in 2006 and, by 2010, was operational in eight states (Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh,

FIGURE 2. Coverage with 1 dose of measles-containing vaccine among children aged 12–23 months, by state — India, 2007–2008*



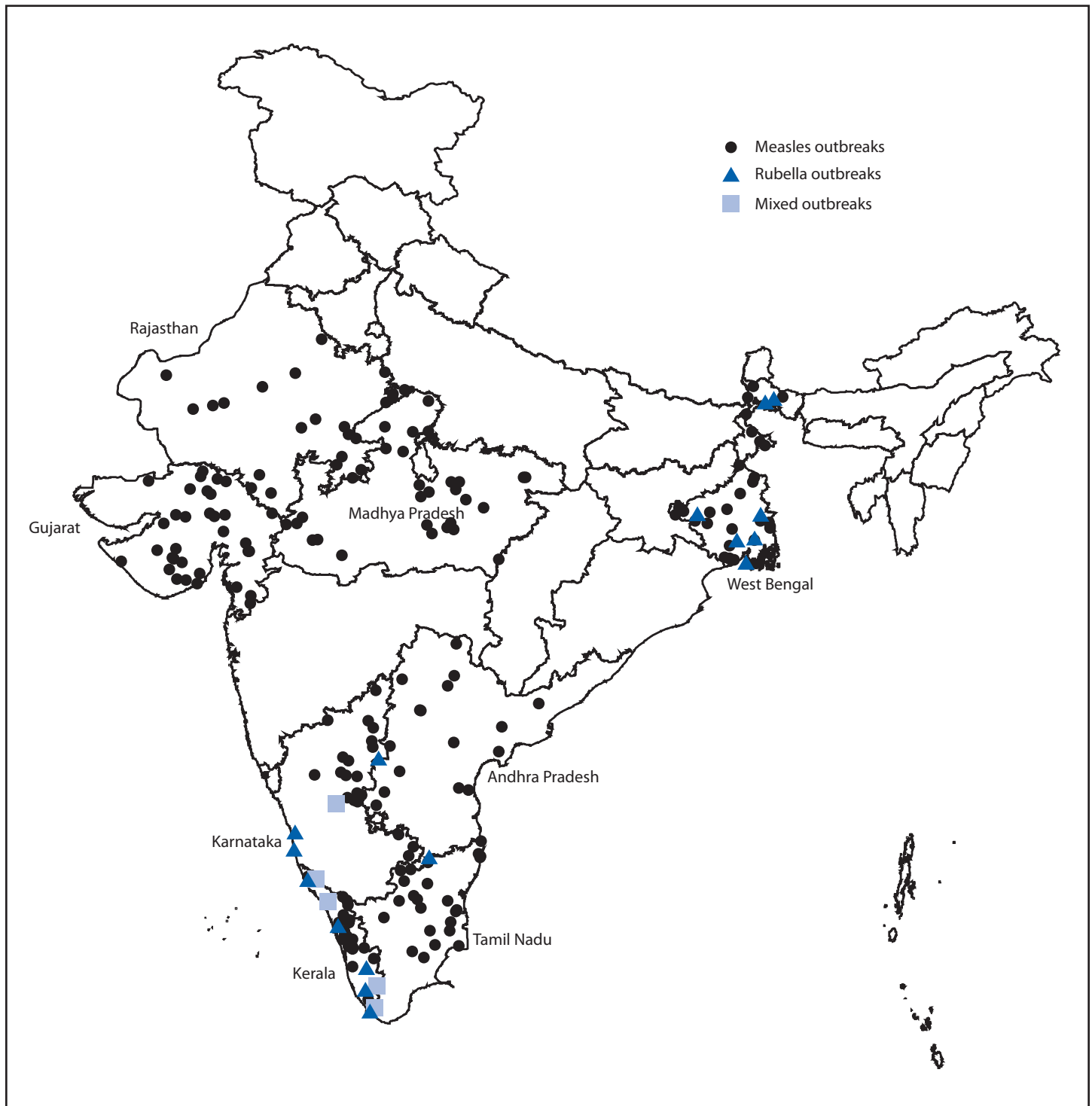
* Data are from the District Level Household and Facility Survey 2007–2008 for all states except Nagaland, for which data are from the UNICEF 2006 Coverage Evaluation Survey.

Rajasthan, Tamil Nadu, and West Bengal). An outbreak is considered confirmed if measles immunoglobulin M (IgM) is detected in serum from at least two suspected cases. Sera are tested by a network of eight laboratories accredited by the

World Health Organization. All samples testing negative for measles IgM are tested for rubella IgM.

During 2010, a total of 242 suspected outbreaks were investigated, and 198 (82%) were laboratory-confirmed

FIGURE 3. Laboratory-confirmed measles and rubella outbreaks in states conducting measles outbreak surveillance — India, 2010*



* Data are from the National Polio Surveillance Project measles surveillance database, 2010.

as measles (Figure 3). Among 8,984 measles patients from laboratory-confirmed outbreaks, 7% were aged <1 year, 41% were aged 1–4 years, 37% were aged 5–9 years, and 15% were aged ≥10 years.

Reported by

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Editorial Note

Overall, 77% of global measles mortality in 2008 was attributable to measles deaths in the WHO South-East Asia Region, the majority of which occurred in India. Therefore, MCV2 introduction in India as part of a comprehensive measles mortality reduction strategy is an important step towards achieving the global target of a 95% reduction in global measles deaths in 2015 from the 733,000 measles deaths estimated in 2000. The government of India is demonstrating strong commitment to this effort and is providing full financial support for the purchase of all vaccines and all logistic and operational costs of MCV2 introduction activities.

Routine vaccination is a critical strategy for achieving high coverage with MCV1 and MCV2. The government of India is implementing measures to strengthen routine vaccination, especially in districts with low coverage. Nevertheless, substantial challenges exist, including the need for 1) increasing the number of trained staff at all levels, 2) increasing public demand for and confidence in vaccines, 3) improving vaccine stock and cold chain management, and 4) developing a strong reporting and management system for adverse events after vaccination. In addition, administration of MCV2 through routine vaccination services targets children aged 16–24 months, the same age that a diphtheria, tetanus, and pertussis (DTP) booster is recommended by the national immunization program. National DTP booster coverage (according to CES 2009) was 41%, indicating the need to rapidly increase coverage of vaccines scheduled beyond the first year of life (4). The first phase of the measles vaccination campaigns highlighted important challenges in planning and implementation, including obtaining strong state-level leadership and coordination, timely determination of campaign dates, reaching populations with the campaign messages, and reaching children in urban areas. Success in overcoming these challenges in the subsequent phases will be critical to reducing measles mortality in India.

Past experience with MCV2 introduction through mass campaigns in other countries has demonstrated that a substantial proportion of the susceptible population needs to be vaccinated during a short period to achieve maximum reduction of measles virus transmission (5). Phased subnational campaigns over a longer period might leave pockets of susceptible children, especially among highly mobile populations. In a country as large and mobile as India, the benefits of conducting large-scale campaigns during a short period need to be balanced with the need to ensure safety and high coverage with injectable vaccines.

What is already known on this topic?

An estimated 77% of global measles mortality in 2008 was attributable to measles deaths in the World Health Organization South-East Asia Region, the majority of which occurred in India. Progress in reducing measles mortality in India is critical in achieving the global goal of 95% reduction in measles mortality by 2015 from the estimated 733,000 measles deaths in 2000. Providing 2 doses of measles-containing vaccine to all children is an important step in reducing measles deaths; until recently, India was the only country not to have implemented this measles mortality reduction strategy.

What is added by this report?

In 2010, the government of India initiated introduction of a second dose of measles-containing vaccine (MCV2) delivered through routine vaccination or mass vaccination campaigns. The first phase of the campaign, initiated in September 2010, vaccinated approximately 12 million children of the 134 million in 14 states targeted to receive measles vaccine from campaigns by 2012. MCV2 is now being provided through routine vaccination to all remaining 21 states. The government of India is demonstrating strong commitment to accelerated measles mortality reduction activities.

What are the implications for public health practice?

Introduction of MCV2 in India is an important step in reducing global measles mortality. The first phase of measles campaigns in India have demonstrated substantial challenges in planning and implementing campaigns, such as obtaining strong state-level leadership, having trained staff at all levels, and increasing public demand and confidence in vaccines.

Therefore, a well-considered approach is needed that covers large areas as quickly as possible without jeopardizing quality or safety. The age distribution and vaccination status of measles patients in the eight states currently implementing measles outbreak surveillance demonstrates gaps in immunity, especially among children aged <10 years. Expanding surveillance to obtain information on measles epidemiology in all Indian states will be important. Such information will allow India to quickly identify and respond to outbreaks and will help guide measles control in India. In particular, it will reveal any possible need for campaigns in states with reported routine MCV1 coverage $\geq 80\%$.

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Announcements

CDC Symposium on Hepatitis C Laboratory Testing and Surveillance — December 1–2, 2011

The Food and Drug Administration recently approved several highly efficacious drugs for treating persons infected with hepatitis C, serving as an additional impetus for improving efforts to screen for hepatitis C virus (HCV) infection. On December 1–2, 2011, CDC's Division of Viral Hepatitis will host a symposium titled, Identification, Screening, and Surveillance of HCV Infections in the Era of Improved Therapy for Hepatitis C, where international experts will present their latest perspectives and findings regarding HCV screening and surveillance, and roundtable discussions will be held to promote an exchange of ideas. The symposium will take place at CDC's Tom Harkin Global Communication Center, 1600 Clifton Road, Atlanta, GA 30333.

Registration is free. Those interested in attending should register online at <http://www.cdc.gov/hepatitis/hcvsymposium2011/registration.htm>. Program information, including a schedule of events and list of presenters, is available at <http://www.cdc.gov/hepatitis/hcvsymposium2011/program.htm>.

The Community Preventive Services Task Force: Celebrating 15 Years of Scientific Excellence

The Community Preventive Services Task Force will celebrate 15 years of scientific excellence during its October 3–4, 2011, meeting in Atlanta, Georgia. The Task Force was first convened in 1996 by the U.S. Department of Health and Human Services to assess the effectiveness of community, environmental, population, and health-care system interventions in public health and health promotion. The Task Force is a nonfederal independent body of nationally recognized leaders in public health practice, policy, and research, whose members are appointed by the CDC Director.

The Task Force assembles three times per year. To date, the Task Force has issued 218 findings and recommendations in 20 different public health topic areas. The Community Guide Branch provides the ongoing administrative, research, and technical support for the operations of the Task Force, under CDC's Epidemiology and Analysis Program Office in the Office of Surveillance, Epidemiology, and Laboratory Services. Task Force findings and recommendations, along with the systematic reviews of the scientific evidence on which they are based, have been used to inform laws and policies, and to support the development of effective public health programs. Additional information about the *Guide to Community Preventive Services* is available at <http://www.thecommunityguide.org/index.html>.

Guests are welcome to attend all or any part of the 15th anniversary meeting with Task Force members, liaisons, partners, and CDC staff members. This meeting is open to the public, limited only by space availability. Persons who would like to attend should e-mail tfcpmeetings@cdc.gov.

Notice to Readers

Revised Estimates of the Public Health Impact of 2009 Pandemic Influenza A (H1N1) Vaccination

In the May 20, 2011, report, “Ten Great Public Health Achievements — United States, 2001–2010,” on page 621, preliminary estimates of the impact of public health interventions during the 2009 H1N1 pandemic were presented as follows: “These public health interventions prevented an estimated 5–10 million cases, 30,000 hospitalizations, and 1,500 deaths (1).” These estimates were derived using combined data from two sources: 1) an unpublished CDC model for estimating the impact of the 2009 H1N1 pandemic influenza vaccine on averting cases, hospitalizations, and deaths during the 2009–10 influenza season and 2) a model for estimating the impact of antiviral treatment in averting hospitalizations and deaths during the 2009–10 season (2). As a result of a programming error, the model used to estimate the impact of vaccination did not adequately adjust for the decreasing risk for disease as the pandemic progressed, and thus the impact of vaccination was overestimated.

The corrected estimates for the combined impact from vaccine and antiviral treatment are as follows: 713,000 to 1.5 million cases, 12,300 to 23,000 hospitalizations, and 620 to 1,160 deaths averted. Of these, 713,000 to 1.5 million cases, 3,900 to 10,400 hospitalizations, and 200 to 520 deaths were averted as a result of the vaccination campaign (CDC, unpublished data, 2011), whereas the use of influenza antiviral medications is estimated to have prevented another 8,400 to 12,600 hospitalizations and another 420 to 640 deaths (2).

It is important to note that the error does not involve nor pertain to the effectiveness of the 2009 H1N1 vaccine, nor to estimates of the burden of the 2009 H1N1 pandemic, which resulted in approximately 43 million to 89 million cases, 195,000 to 403,000 hospitalizations, and 8,900 to 18,300 deaths, including 910 to 1,880 deaths among children aged <18 years, during April 2009–April 2010 (3). CDC-supported evaluations have shown that the vaccine was effective in preventing influenza medical visits during the pandemic (4). However, because there was early widespread circulation of the 2009 H1N1 virus, many persons in the United States became ill before vaccine was available.

CDC continues to work on developing and evaluating statistical models for estimating the impact of influenza vaccination in order to develop better programs and ways to monitor the impact of those programs. CDC expects this work might lead to future publications that provide additional impact estimates.

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Notifiable Diseases and Mortality Tables

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending September 24, 2011 (38th week)*

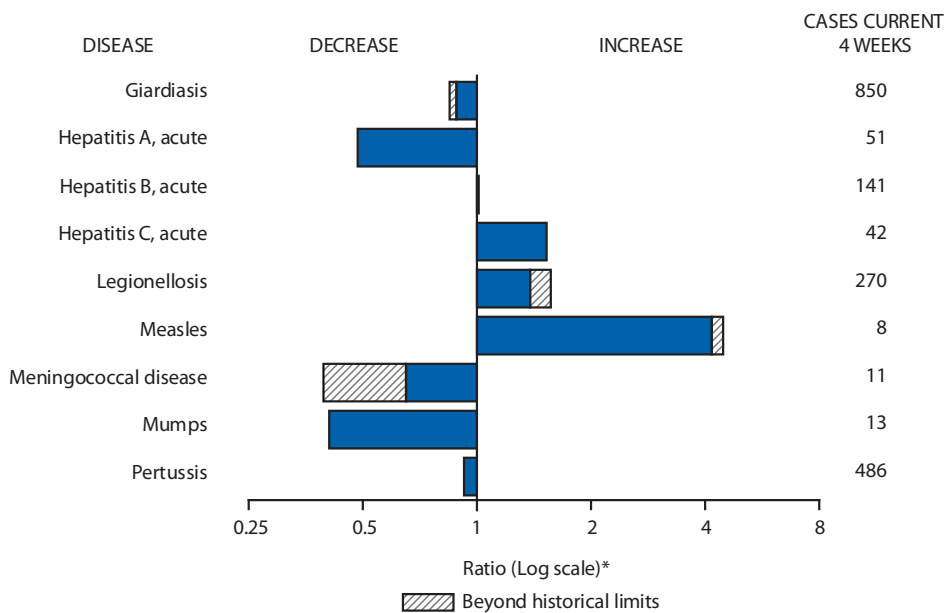
Disease	Current week	Cum 2011	5-year weekly average [†]	Total cases reported for previous years					States reporting cases during current week (No.)
				2010	2009	2008	2007	2006	
Anthrax	—	—	—	—	1	—	1	1	
Arboviral diseases ^{§, ¶} :									
California serogroup virus disease	—	62	3	75	55	62	55	67	
Eastern equine encephalitis virus disease	—	3	0	10	4	4	4	8	
Powassan virus disease	—	12	—	8	6	2	7	1	
St. Louis encephalitis virus disease	—	1	0	10	12	13	9	10	
Western equine encephalitis virus disease	—	—	—	—	—	—	—	—	
Babesiosis	8	412	1	NN	NN	NN	NN	NN	NY (7), PA (1)
Botulism, total	—	66	2	112	118	145	144	165	
foodborne	—	8	0	7	10	17	32	20	
infant	—	50	2	80	83	109	85	97	
other (wound and unspecified)	—	8	0	25	25	19	27	48	
Brucellosis	1	60	2	115	115	80	131	121	PA (1)
Chancroid	—	11	0	24	28	25	23	33	
Cholera	—	27	0	13	10	5	7	9	
Cyclosporiasis [§]	—	128	2	179	141	139	93	137	
Diphtheria	—	—	—	—	—	—	—	—	
<i>Haemophilus influenzae</i> ,** invasive disease (age <5 yrs):									
serotype b	—	5	1	23	35	30	22	29	
nonsensory type b	—	82	2	200	236	244	199	175	
unknown serotype	2	176	2	223	178	163	180	179	SC (1), FL (1)
Hansen disease [§]	—	33	2	98	103	80	101	66	
Hantavirus pulmonary syndrome [§]	—	18	1	20	20	18	32	40	
Hemolytic uremic syndrome, postdiarrheal [§]	1	109	8	266	242	330	292	288	OK (1)
Influenza-associated pediatric mortality ^{§, ††}	—	112	2	61	358	90	77	43	
Listeriosis	18	460	21	821	851	759	808	884	NY (1), OH (1), NE (1), MD (1), NC (2), OK (6), CO (6)
Measles ^{§§}	5	196	1	63	71	140	43	55	CA (5)
Meningococcal disease, invasive¶¶:									
A, C, Y, and W-135	2	134	4	280	301	330	325	318	NY (1), GA (1)
serogroup B	—	68	2	135	174	188	167	193	
other serogroup	—	11	0	12	23	38	35	32	
unknown serogroup	3	301	7	406	482	616	550	651	MO (1), NE (1), FL (1)
Novel influenza A virus infections***	—	6	0	4	43,774	2	4	NN	
Plague	—	2	0	2	8	3	7	17	
Poliomyelitis, paralytic	—	—	—	—	1	—	—	—	
Polio virus Infection, nonparalytic [§]	—	—	—	—	—	—	—	NN	
Psittacosis [§]	—	2	0	4	9	8	12	21	
Q fever, total [§]	1	78	3	131	113	120	171	169	
acute	1	59	2	106	93	106	—	—	MO (1)
chronic	—	19	0	25	20	14	—	—	
Rabies, human	—	—	0	2	4	2	1	3	
Rubella ^{†††}	—	3	0	5	3	16	12	11	
Rubella, congenital syndrome	—	—	—	—	2	—	—	1	
SARS-CoV [§]	—	—	—	—	—	—	—	—	
Smallpox [§]	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome [§]	—	84	1	142	161	157	132	125	
Syphilis, congenital (age <1 yr) ^{§§§}	—	139	8	377	423	431	430	349	
Tetanus	—	6	1	26	18	19	28	41	
Toxic-shock syndrome (staphylococcal) [§]	—	60	1	82	74	71	92	101	
Trichinellosis	—	8	0	7	13	39	5	15	
Tularemia	1	97	2	124	93	123	137	95	MO (1)
Typhoid fever	1	264	12	467	397	449	434	353	VA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> [§]	3	49	1	91	78	63	37	6	SC (2), FL (1)
Vancomycin-resistant <i>Staphylococcus aureus</i> [§]	—	—	—	2	1	—	2	1	
Vibriosis (noncholera <i>Vibrio</i> species infections) [§]	11	496	18	846	789	588	549	NN	OH (1), MD (2), VA (1), NC (1), FL (5), OK (1)
Viral hemorrhagic fever¶¶¶	—	—	—	1	NN	NN	NN	NN	
Yellow fever	—	—	—	—	—	—	—	—	

See Table 1 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 24, 2011 (38th week)*

—: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts.
 * Case counts for reporting years 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf.
 † Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at http://www.cdc.gov/osels/ph_surveillance/nndss/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 arboviral diseases, STD data, TB data, and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/osels/ph_surveillance/nndss/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.
 ** Data for H. influenzae (all ages, all serotypes) are available in Table II.
 †† Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. Since October 3, 2010, 116 influenza-associated pediatric deaths occurring during the 2010-11 influenza season have been reported.
 ‡‡ The five measles cases reported for the current week were imported.
 ¶¶ Data for meningococcal disease (all serogroups) are available in Table II.
 *** CDC discontinued reporting of individual confirmed and probable cases of 2009 pandemic influenza A (H1N1) virus infections on July 24, 2009. During 2009, four cases of human infection with novel influenza A viruses, different from the 2009 pandemic influenza A (H1N1) strain, were reported to CDC. The four cases of novel influenza A virus infection reported to CDC during 2010, and the six cases reported during 2011, were identified as swine influenza A (H3N2) virus and are unrelated to the 2009 pandemic influenza A (H1N1) virus. Total case counts for 2009 were provided by the Influenza Division, National Center for Immunization and Respiratory Diseases (NCIRD).
 ††† No rubella cases were reported for the current week.
 §§§ Updated weekly from reports to the Division of STD Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.
 ¶¶¶ There was one case of viral hemorrhagic fever reported during week 12 of 2010. The one case report was confirmed as lassa fever. See Table II for dengue hemorrhagic fever.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals September 24, 2011, 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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Morbidity and Mortality Weekly Report

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending September 24, 2011, and September 25, 2010 (38th week)*

Reporting area	Dengue Virus Infection†									
	Dengue Fever§					Dengue Hemorrhagic Fever¶				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
	Med	Max				Med	Max			
United States	—	3	22	92	583	—	0	1	1	9
New England	—	0	3	1	6	—	0	0	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—
Maine**	—	0	2	—	3	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island**	—	0	1	—	1	—	0	0	—	—
Vermont**	—	0	1	1	2	—	0	0	—	—
Mid. Atlantic	—	1	4	22	198	—	0	0	—	5
New Jersey	—	0	3	—	25	—	0	0	—	—
New York (Upstate)	—	0	1	—	28	—	0	0	—	2
New York City	—	0	4	10	127	—	0	0	—	3
Pennsylvania	—	0	2	12	18	—	0	0	—	—
E.N. Central	—	0	4	7	56	—	0	0	—	1
Illinois	—	0	2	1	16	—	0	0	—	—
Indiana	—	0	1	1	12	—	0	0	—	—
Michigan	—	0	1	2	8	—	0	0	—	—
Ohio	—	0	1	1	14	—	0	0	—	—
Wisconsin	—	0	2	2	6	—	0	0	—	1
W.N. Central	—	0	6	4	24	—	0	1	—	—
Iowa	—	0	1	3	2	—	0	0	—	—
Kansas	—	0	1	1	4	—	0	0	—	—
Minnesota	—	0	1	—	13	—	0	0	—	—
Missouri	—	0	1	—	4	—	0	0	—	—
Nebraska**	—	0	6	—	—	—	0	0	—	—
North Dakota	—	0	0	—	1	—	0	0	—	—
South Dakota	—	0	0	—	—	—	0	1	—	—
S. Atlantic	—	1	10	35	206	—	0	1	1	2
Delaware	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
Florida	—	1	8	27	160	—	0	0	—	2
Georgia	—	0	2	3	11	—	0	0	—	—
Maryland**	—	0	0	—	—	—	0	0	—	—
North Carolina	—	0	1	1	6	—	0	0	—	—
South Carolina**	—	0	0	—	13	—	0	0	—	—
Virginia**	—	0	1	4	14	—	0	1	1	—
West Virginia	—	0	0	—	2	—	0	0	—	—
E.S. Central	—	0	1	—	5	—	0	0	—	—
Alabama**	—	0	1	—	2	—	0	0	—	—
Kentucky	—	0	0	—	2	—	0	0	—	—
Mississippi	—	0	0	—	—	—	0	0	—	—
Tennessee**	—	0	0	—	1	—	0	0	—	—
W.S. Central	—	0	2	5	25	—	0	0	—	1
Arkansas**	—	0	0	—	—	—	0	0	—	1
Louisiana	—	0	1	2	4	—	0	0	—	—
Oklahoma	—	0	1	—	4	—	0	0	—	—
Texas**	—	0	1	3	17	—	0	0	—	—
Mountain	—	0	2	3	17	—	0	0	—	—
Arizona	—	0	2	2	7	—	0	0	—	—
Colorado	—	0	0	—	—	—	0	0	—	—
Idaho**	—	0	1	—	2	—	0	0	—	—
Montana**	—	0	1	—	3	—	0	0	—	—
Nevada**	—	0	0	—	4	—	0	0	—	—
New Mexico**	—	0	0	—	1	—	0	0	—	—
Utah	—	0	1	1	—	—	0	0	—	—
Wyoming**	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	4	15	46	—	0	0	—	—
Alaska	—	0	0	—	1	—	0	0	—	—
California	—	0	2	5	32	—	0	0	—	—
Hawaii	—	0	4	5	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—
Washington	—	0	1	5	13	—	0	0	—	—
Territories										
American Samoa	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	29	346	719	8,909	—	0	10	9	207
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.

U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

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† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance).

§ Dengue Fever includes cases that meet criteria for Dengue Fever with hemorrhage, other clinical and unknown case classifications.

¶ DHF includes cases that meet criteria for dengue shock syndrome (DSS), a more severe form of DHF.

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

Morbidity and Mortality Weekly Report

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending September 24, 2011, and September 25, 2010 (38th week)*

Reporting area	Ehrlichiosis/Anaplasmosis [†]														
	<i>Ehrlichia chaffeensis</i>					<i>Anaplasma phagocytophilum</i>					Undetermined				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
	Med	Max				Med	Max				Med	Max			
United States	13	7	109	577	554	23	16	42	442	1,436	2	1	13	85	75
New England	—	0	2	4	4	—	2	15	108	77	—	0	1	1	2
Connecticut	—	0	0	—	—	—	0	5	—	31	—	0	0	—	—
Maine [§]	—	0	1	1	2	—	0	2	12	14	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	10	49	—	—	0	0	—	—
New Hampshire	—	0	1	2	2	—	0	4	14	13	—	0	1	1	2
Rhode Island [§]	—	0	1	1	—	—	0	10	30	18	—	0	0	—	—
Vermont [§]	—	0	0	—	—	—	0	1	3	1	—	0	0	—	—
Mid. Atlantic	1	1	7	52	77	17	4	27	229	212	1	0	2	11	9
New Jersey	—	0	1	—	47	—	0	3	—	58	—	0	0	—	1
New York (Upstate)	1	0	7	45	24	17	3	25	199	143	1	0	2	11	6
New York City	—	0	1	7	5	—	0	5	28	10	—	0	0	—	—
Pennsylvania	—	0	1	—	1	—	0	1	2	1	—	0	1	—	2
E.N. Central	—	0	3	21	40	1	0	9	12	441	—	1	4	36	40
Illinois	—	0	2	11	14	—	0	2	4	6	—	0	1	2	3
Indiana	—	0	0	—	—	—	0	0	—	—	—	0	3	28	14
Michigan	—	0	2	4	2	—	0	1	—	3	—	0	2	4	—
Ohio	—	0	1	6	6	1	0	1	5	2	—	0	1	1	—
Wisconsin	—	0	1	—	18	—	0	9	3	430	—	0	1	1	23
W.N. Central	1	1	18	142	114	—	1	20	31	633	—	0	11	15	9
Iowa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Kansas	—	0	1	2	6	—	0	1	2	1	—	0	0	—	—
Minnesota	—	0	12	—	—	—	0	20	1	622	—	0	11	—	—
Missouri	1	1	18	138	107	—	0	7	26	10	—	0	7	14	9
Nebraska [§]	—	0	1	1	1	—	0	0	—	—	—	0	1	1	—
North Dakota	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
South Dakota	—	0	1	1	—	—	0	1	2	—	—	0	0	—	—
S. Atlantic	1	3	33	201	214	3	1	8	47	53	1	0	1	9	4
Delaware	—	0	2	15	16	—	0	1	1	4	—	0	0	—	—
District of Columbia	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Florida	—	0	3	13	8	—	0	3	8	3	—	0	0	—	—
Georgia	—	0	3	16	19	—	0	2	7	1	—	0	1	1	1
Maryland [§]	1	0	3	23	19	—	0	2	4	12	—	0	0	—	2
North Carolina	—	0	17	55	78	—	0	6	17	21	—	0	0	—	—
South Carolina [§]	—	0	1	1	4	—	0	0	—	1	—	0	0	—	—
Virginia [§]	—	1	14	78	68	3	0	2	10	11	1	0	1	7	1
West Virginia	—	0	1	—	2	—	0	0	—	—	—	0	1	1	—
E.S. Central	—	0	8	63	82	—	0	2	10	18	—	0	3	9	8
Alabama [§]	—	0	2	3	10	—	0	1	3	7	N	0	0	N	N
Kentucky	—	0	3	10	14	—	0	0	—	—	—	0	0	—	1
Mississippi	—	0	1	3	3	—	0	0	—	2	—	0	0	—	1
Tennessee [§]	—	0	6	47	55	—	0	1	7	9	—	0	3	9	6
W.S. Central	10	0	87	94	22	1	0	9	3	2	—	0	0	—	1
Arkansas [§]	—	0	12	38	4	—	0	2	2	—	—	0	0	—	—
Louisiana	—	0	0	—	1	—	0	0	—	—	—	0	0	—	—
Oklahoma	10	0	82	55	14	1	0	7	1	2	—	0	0	—	—
Texas [§]	—	0	1	1	3	—	0	1	—	—	—	0	0	—	1
Mountain	—	0	0	—	—	—	0	0	—	—	—	0	1	3	—
Arizona	—	0	0	—	—	—	0	0	—	—	—	0	1	3	—
Colorado	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Idaho [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Montana [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Nevada [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
New Mexico [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Utah	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Wyoming [§]	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	1	—	1	1	0	1	2	—	—	0	1	1	2
Alaska	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
California	—	0	1	—	1	—	0	0	—	—	—	0	1	1	2
Hawaii	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Oregon	—	0	0	—	—	1	0	1	2	—	—	0	0	—	—
Washington	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Puerto Rico	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
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. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

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† Cumulative total *E. ewingii* cases reported for year 2010 = 10, and 11 cases reported for 2011.

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

Morbidity and Mortality Weekly Report

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending September 24, 2011, and September 25, 2010 (38th week)*

Reporting area	Hepatitis (viral, acute), by type														
	A				B				C						
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
	Med	Max				Med	Max				Med	Max			
United States	14	22	74	802	1,179	73	48	167	1,728	2,401	10	18	39	701	608
New England	—	1	4	38	81	—	1	8	46	44	—	1	4	40	42
Connecticut	—	0	3	9	22	—	0	4	10	18	—	0	3	25	28
Maine†	—	0	2	5	7	—	0	2	6	11	—	0	2	6	2
Massachusetts	—	0	2	16	43	—	0	6	29	8	—	0	2	5	12
New Hampshire	—	0	1	—	—	—	0	1	1	5	N	0	0	N	N
Rhode Island†	—	0	1	3	9	U	0	0	U	U	U	0	0	U	U
Vermont†	—	0	2	5	—	—	0	0	—	2	—	0	1	4	—
Mid. Atlantic	3	4	12	147	192	4	5	12	193	222	1	1	6	60	79
New Jersey	—	1	4	20	57	—	1	4	32	60	—	0	4	1	17
New York (Upstate)	2	1	4	37	41	2	1	9	36	36	1	0	4	35	39
New York City	—	1	6	49	53	—	1	5	58	69	—	0	0	—	3
Pennsylvania	1	1	3	41	41	2	2	4	67	57	—	0	4	24	20
E.N. Central	2	4	9	137	153	1	5	38	244	375	1	3	12	132	69
Illinois	—	1	3	33	42	—	1	6	51	96	—	0	1	5	—
Indiana	—	0	3	12	11	—	1	3	35	58	—	0	5	47	24
Michigan	—	1	6	56	51	—	1	6	63	99	1	2	7	75	30
Ohio	2	1	5	31	35	1	1	30	75	83	—	0	1	4	8
Wisconsin	—	0	2	5	14	—	0	3	20	39	—	0	1	1	7
W.N. Central	—	1	25	32	63	—	2	16	97	86	—	0	6	6	13
Iowa	—	0	1	4	9	—	0	1	7	12	—	0	0	—	—
Kansas	—	0	2	3	10	—	0	2	9	6	—	0	1	2	1
Minnesota	—	0	22	9	13	—	0	15	9	6	—	0	6	2	6
Missouri	—	0	1	10	16	—	2	5	60	51	—	0	1	—	4
Nebraska†	—	0	3	4	14	—	0	3	11	10	—	0	1	2	2
North Dakota	—	0	3	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	2	1	—	0	1	1	1	—	0	0	—	—
S. Atlantic	5	5	13	169	260	53	12	33	479	661	5	4	11	172	137
Delaware	—	0	1	2	6	—	0	1	—	21	U	0	0	U	U
District of Columbia	—	0	0	—	1	—	0	0	—	3	—	0	0	—	2
Florida	3	1	6	58	104	6	4	11	151	218	3	1	4	45	43
Georgia	1	1	4	33	29	3	2	8	68	132	—	1	3	26	18
Maryland†	—	0	4	21	17	—	1	4	41	47	—	0	2	27	18
North Carolina	1	0	3	20	41	1	2	12	83	80	—	1	7	40	32
South Carolina†	—	0	2	9	22	—	1	4	25	46	—	0	1	1	1
Virginia†	—	1	4	18	38	—	1	7	48	67	2	0	2	14	9
West Virginia	—	0	5	8	2	43	0	18	63	47	—	0	6	19	14
E.S. Central	—	0	6	35	32	4	9	14	306	264	2	3	7	124	117
Alabama†	—	0	2	4	5	1	2	4	77	50	—	0	2	10	5
Kentucky	—	0	6	7	13	—	2	6	76	93	1	1	6	51	81
Mississippi	—	0	1	6	2	—	1	3	31	25	U	0	0	U	U
Tennessee†	—	0	5	18	12	3	3	7	122	96	1	1	5	63	31
W.S. Central	4	2	15	87	97	9	7	67	216	424	1	2	11	67	53
Arkansas†	—	0	1	—	1	—	1	4	37	48	—	0	0	—	1
Louisiana	—	0	1	2	8	—	1	4	23	43	—	0	2	5	2
Oklahoma	—	0	4	3	1	4	1	16	52	74	—	1	10	34	19
Texas†	4	2	11	82	87	5	3	45	104	259	1	0	3	28	31
Mountain	—	1	5	51	121	1	2	5	56	106	—	1	4	42	49
Arizona	—	0	2	14	52	1	0	3	13	18	U	0	0	U	U
Colorado	—	0	2	17	32	—	0	3	15	36	—	0	3	14	11
Idaho†	—	0	1	6	6	—	0	1	2	6	—	0	2	8	9
Montana†	—	0	1	2	4	—	0	0	—	—	—	0	1	3	2
Nevada†	—	0	3	5	12	—	0	3	16	34	—	0	1	5	4
New Mexico†	—	0	1	4	3	—	0	2	5	4	—	0	1	9	13
Utah	—	0	2	1	9	—	0	1	5	7	—	0	1	1	10
Wyoming†	—	0	1	2	3	—	0	1	—	1	—	0	1	2	—
Pacific	—	3	15	106	180	1	3	25	91	219	—	1	12	58	49
Alaska	—	0	1	2	1	—	0	1	4	2	U	0	0	U	U
California	—	2	15	77	143	—	2	22	38	147	—	1	4	23	20
Hawaii	—	0	2	7	6	—	0	1	5	5	U	0	0	U	U
Oregon	—	0	2	5	15	1	0	4	27	33	—	0	3	11	11
Washington	—	0	4	15	15	—	0	4	17	32	—	0	5	24	18
Territories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	5	8	4	—	0	8	28	64	—	0	4	10	52
Puerto Rico	—	0	2	6	11	—	0	3	7	17	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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Morbidity and Mortality Weekly Report

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending September 24, 2011, and September 25, 2010 (38th week)*

Reporting area	Legionellosis					Lyme disease					Malaria				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
		Med	Max				Med	Max				Med	Max		
United States	86	53	128	2,190	2,358	372	352	1,630	21,084	24,938	19	27	114	950	1,257
New England	1	4	15	122	190	1	72	293	3,481	7,575	—	1	20	52	83
Connecticut	—	0	6	25	31	—	29	173	1,438	2,565	—	0	20	6	2
Maine†	1	0	2	9	10	—	9	49	380	544	—	0	1	3	5
Massachusetts	—	1	9	58	96	—	16	50	494	2,924	—	1	5	33	64
New Hampshire	—	0	3	12	16	—	11	60	594	1,102	—	0	2	2	2
Rhode Island†	—	0	4	9	28	—	1	35	110	152	—	0	4	2	7
Vermont†	—	0	2	9	9	1	5	62	465	288	—	0	1	6	3
Mid. Atlantic	42	15	53	708	621	323	151	1,157	13,745	8,845	3	7	18	204	386
New Jersey	—	2	18	88	97	84	51	540	5,536	3,080	—	0	6	8	83
New York (Upstate)	21	5	24	245	184	138	35	214	2,720	2,005	3	1	4	34	61
New York City	—	3	17	107	117	—	1	18	58	581	—	3	12	116	199
Pennsylvania	21	5	28	268	223	101	62	491	5,431	3,179	—	1	4	46	43
E.N. Central	12	10	50	492	522	2	20	93	1,006	3,393	1	3	7	109	130
Illinois	—	1	6	61	130	—	1	19	124	122	—	1	4	42	51
Indiana	—	1	5	65	46	—	0	15	78	75	—	0	2	8	11
Michigan	—	2	14	108	132	2	1	10	84	83	1	0	4	23	26
Ohio	12	4	34	257	163	—	1	9	39	22	—	1	4	30	33
Wisconsin	—	0	4	1	51	—	16	63	681	3,091	—	0	2	6	9
W.N. Central	—	2	9	61	86	—	2	32	91	1,911	1	1	45	25	56
Iowa	—	0	2	8	14	—	0	11	66	81	—	0	3	15	10
Kansas	—	0	2	5	8	—	0	2	10	10	—	0	2	6	9
Minnesota	—	0	8	—	23	—	0	31	—	1,794	—	0	45	—	3
Missouri	—	1	5	41	25	—	0	0	—	4	—	0	1	—	16
Nebraska†	—	0	1	4	8	—	0	2	8	8	1	0	1	3	15
North Dakota	—	0	1	1	3	—	0	10	4	13	—	0	1	—	—
South Dakota	—	0	2	2	5	—	0	1	3	1	—	0	1	1	3
S. Atlantic	22	8	22	338	392	42	52	164	2,512	2,925	10	8	23	331	329
Delaware	—	0	2	9	13	8	11	46	640	540	—	0	3	6	2
District of Columbia	—	0	3	9	14	—	0	2	11	32	—	0	1	5	11
Florida	6	3	9	115	124	6	1	8	91	65	—	2	7	78	98
Georgia	—	1	4	27	43	—	0	3	15	9	3	1	5	63	57
Maryland†	12	1	6	64	88	12	18	104	896	1,211	4	2	13	85	72
North Carolina	—	1	7	49	43	—	0	8	51	64	—	0	6	34	34
South Carolina†	—	0	4	13	10	1	0	6	24	27	1	0	1	4	3
Virginia†	4	1	9	46	46	9	17	76	729	889	2	1	8	56	50
West Virginia	—	0	2	6	11	6	0	14	55	88	—	0	1	—	2
E.S. Central	1	2	10	116	104	—	1	5	45	39	—	1	3	25	24
Alabama†	—	0	2	18	15	—	0	2	13	2	—	0	2	5	6
Kentucky	—	0	3	23	22	—	0	1	1	5	—	0	1	6	6
Mississippi	—	0	3	10	12	—	0	1	3	—	—	0	1	1	2
Tennessee†	1	1	8	65	55	—	0	3	28	32	—	0	3	13	10
W.S. Central	4	3	13	92	122	—	1	29	32	85	—	1	18	26	75
Arkansas†	—	0	2	9	14	—	0	0	—	—	—	0	1	4	4
Louisiana	—	0	3	13	9	—	0	1	1	3	—	0	1	1	2
Oklahoma	2	0	3	9	11	—	0	0	—	—	—	0	1	4	5
Texas†	2	2	11	61	88	—	1	29	31	82	—	0	17	17	64
Mountain	1	2	5	64	134	—	0	4	30	24	—	1	4	50	48
Arizona	—	1	3	21	47	—	0	2	7	2	—	0	4	20	22
Colorado	—	0	2	4	24	—	0	1	1	2	—	0	3	18	15
Idaho†	1	0	1	5	5	—	0	2	3	8	—	0	1	2	1
Montana†	—	0	1	1	4	—	0	2	8	4	—	0	1	1	2
Nevada†	—	0	2	11	18	—	0	1	3	—	—	0	2	6	4
New Mexico†	—	0	2	7	7	—	0	2	6	5	—	0	1	2	1
Utah	—	0	2	13	22	—	0	1	1	3	—	0	1	1	3
Wyoming†	—	0	1	2	7	—	0	1	1	—	—	0	0	—	—
Pacific	3	5	21	197	187	4	3	11	142	141	4	4	10	128	126
Alaska	—	0	0	—	2	—	0	2	6	6	—	0	2	4	3
California	3	4	15	168	159	4	2	9	117	90	4	2	8	91	84
Hawaii	—	0	1	1	1	N	0	0	N	N	—	0	1	5	2
Oregon	—	0	3	12	10	—	0	2	13	38	—	0	4	12	9
Washington	—	0	6	16	15	—	0	4	6	7	—	0	3	16	28
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	—	0	1	1	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	1	—	1	N	0	0	N	N	—	0	0	—	5
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. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

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

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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending September 24, 2011, and September 25, 2010 (38th week)*

Reporting area	<i>Streptococcus pneumoniae</i> , [†] invasive disease														
	All ages					Age <5					Syphilis, primary and secondary				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
		Med	Max				Med	Max				Med	Max		
United States	115	298	937	10,106	11,146	6	23	101	731	1,366	112	256	363	9,040	9,999
New England	2	17	79	552	611	—	1	5	29	79	5	7	16	263	355
Connecticut	—	6	49	235	246	—	0	3	6	22	—	1	8	39	71
Maine [§]	1	2	13	98	88	—	0	1	3	7	—	0	3	11	21
Massachusetts	—	0	3	21	53	—	0	3	8	37	3	4	10	160	222
New Hampshire	—	2	8	73	83	—	0	1	5	4	—	0	3	14	14
Rhode Island [§]	—	2	8	73	80	—	0	1	2	5	—	0	7	32	25
Vermont [§]	1	1	6	52	61	—	0	2	5	4	2	0	2	7	2
Mid. Atlantic	4	33	81	1,007	1,142	—	3	27	84	168	15	30	50	1,077	1,252
New Jersey	—	13	35	472	509	—	1	4	28	41	—	4	13	144	180
New York (Upstate)	—	1	10	60	112	—	1	9	34	83	8	3	20	136	99
New York City	4	13	42	475	521	—	0	14	22	44	1	15	30	543	704
Pennsylvania	N	0	0	N	N	N	0	0	N	N	6	6	13	254	269
E.N. Central	11	67	113	2,184	2,258	—	4	10	119	205	10	30	48	1,099	1,456
Illinois	N	0	0	N	N	N	0	0	N	N	10	13	22	449	693
Indiana	—	16	32	490	524	—	0	4	21	42	—	3	8	113	138
Michigan	1	15	29	484	516	—	1	4	25	65	—	5	12	180	187
Ohio	8	26	45	893	862	—	2	7	61	70	—	9	21	317	403
Wisconsin	2	9	24	317	356	—	0	3	12	28	—	1	5	40	35
W.N. Central	1	4	35	128	598	—	0	5	9	86	—	6	17	211	256
Iowa	N	0	0	N	N	N	0	0	N	N	—	0	2	12	16
Kansas	N	0	0	N	N	N	0	0	N	N	—	0	3	19	17
Minnesota	—	0	24	—	450	—	0	5	—	70	—	3	10	87	98
Missouri	N	0	0	N	N	N	0	0	N	N	—	2	6	87	115
Nebraska [§]	1	2	9	85	98	—	0	2	8	14	—	0	2	5	6
North Dakota	—	0	25	43	50	—	0	1	1	2	—	0	1	1	—
South Dakota	N	0	0	N	N	N	0	0	N	N	—	0	0	—	4
S. Atlantic	48	72	170	2,828	3,030	3	7	22	210	378	39	64	178	2,350	2,289
Delaware	—	1	6	37	28	—	0	1	—	—	1	0	4	16	4
District of Columbia	—	1	3	28	55	—	0	1	4	7	—	3	8	119	105
Florida	25	23	68	1,020	1,115	1	3	13	91	151	2	23	36	813	828
Georgia	11	22	54	756	974	1	2	7	54	118	4	13	130	472	492
Maryland [§]	7	10	32	407	385	1	1	4	28	43	2	9	19	329	226
North Carolina	N	0	0	N	N	N	0	0	N	N	21	8	19	290	317
South Carolina [§]	5	8	25	339	383	—	0	3	20	43	3	4	10	154	101
Virginia [§]	N	0	0	N	N	N	0	0	N	N	6	4	16	155	210
West Virginia	—	1	48	241	90	—	0	6	13	16	—	0	2	2	6
E.S. Central	9	19	36	665	758	1	1	4	43	71	1	15	34	519	650
Alabama [§]	N	0	0	N	N	N	0	0	N	N	—	4	11	138	185
Kentucky	N	0	0	N	N	N	0	0	N	N	—	2	16	79	97
Mississippi	N	0	0	N	N	N	0	0	N	N	1	3	16	129	160
Tennessee [§]	9	19	36	665	758	1	1	4	43	71	—	5	11	173	208
W.S. Central	25	31	368	1,343	1,367	1	4	30	127	185	29	35	59	1,285	1,543
Arkansas [§]	3	3	26	165	128	—	0	3	13	14	5	4	10	149	158
Louisiana	—	3	11	119	82	—	0	2	10	20	2	7	24	274	413
Oklahoma	N	0	0	N	N	N	0	0	N	N	—	1	6	42	69
Texas [§]	22	25	333	1,059	1,157	1	3	27	104	151	22	23	33	820	903
Mountain	15	32	72	1,280	1,300	1	3	8	100	178	1	12	23	390	436
Arizona	6	12	45	611	622	1	1	5	49	80	1	4	8	151	167
Colorado	8	11	23	399	394	—	0	4	28	54	—	2	8	77	95
Idaho [§]	N	0	0	N	N	N	0	0	N	N	—	0	4	11	2
Montana [§]	N	0	0	N	N	N	0	0	N	N	—	0	1	4	3
Nevada [§]	N	0	0	N	N	N	0	0	N	N	—	2	9	92	78
New Mexico [§]	1	3	13	177	119	—	0	2	11	15	—	1	4	47	37
Utah	—	2	8	74	154	—	0	3	12	26	—	0	4	8	54
Wyoming [§]	—	0	15	19	11	—	0	1	—	3	—	0	0	—	—
Pacific	—	3	11	119	82	—	0	1	10	16	12	51	66	1,846	1,762
Alaska	—	3	11	115	82	—	0	1	8	16	—	0	1	1	3
California	N	0	0	N	N	N	0	0	N	N	9	42	57	1,521	1,494
Hawaii	—	0	3	4	—	—	0	1	2	—	—	0	5	10	28
Oregon	N	0	0	N	N	N	0	0	N	N	2	3	10	119	52
Washington	N	0	0	N	N	N	0	0	N	N	1	5	13	195	185
Territories															
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	—	—	7	4	13	166	171
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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