Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 61 / No. 4
February 3, 2012

Recovery of a Patient from Clinical Rabies — California, 2011

In May 2011, a girl aged 8 years from a rural county in California was brought to a local emergency department (ED) with a 1-week history of progressive sore throat, difficulty swallowing, and weakness. After she developed flaccid paralysis and encephalitis, rabies was diagnosed based on 1) detection of rabies virus–specific antibodies in serum and cerebrospinal fluid (CSF), 2) a compatible clinical syndrome in the patient, and 3) absence of a likely alternative diagnosis. The patient received advanced supportive care, including treatment with therapeutic coma. She was successfully extubated after 15 days and discharged from the hospital 37 days later to continue rehabilitation therapy as an outpatient. The public health investigation identified contact with free-roaming, unvaccinated cats at the patient's school as a possible source of infection. Several of these cats were collected from the school and remained healthy while under observation, but at least one was lost to follow-up. A total of 27 persons received rabies postexposure prophylaxis (PEP) for potential exposures to the patient's saliva. No further cases of rabies associated with this case have been identified. Rabies prevention efforts should highlight the importance of domestic animal vaccination, avoidance of wildlife and unvaccinated animals, and prompt PEP after an exposure.

Case Report

On April 25, 2011, a girl aged 8 years visited her pediatrician with a complaint of a sore throat and vomiting when taking sotalol, a medication previously prescribed for her supraventricular tachycardia. Over the next few days, she developed swallowing difficulties and could drink only small amounts of liquids, but was able to carry on with daily activities. Three days after her initial visit, she was seen in a local ED for poor oral intake and was given intravenous fluids to treat dehydration. Two days later, she complained of abdominal pain without localization and neck and back pain, and was brought back to the ED, where she was evaluated and discharged home with a presumed viral illness. The next day, May 1, she returned for a third time to the ED with complaints of sore throat, generalized weakness, and abdominal pain suggestive of appendicitis. On physical examination, she was confused with a pulse of 108 beats per minute, blood pressure of 112/87 mmHg, and temperature of 96.7°F (35.9°C). Head and abdominal computed tomography (CT) were unremarkable. Chest CT was only remarkable for left lower lobe atelectasis. She choked while trying to drink oral radiographic contrast medium. Because of respiratory distress and acidosis shown by arterial blood gas analysis, she was intubated and placed on a ventilator. She was given intravenous fluids, ceftriaxone, and azithromycin and was transferred to a tertiary-care facility.

On admission to the pediatric intensive-care unit, neurologic examination revealed bilateral lower extremity weakness. Laboratory testing of peripheral blood drawn on May 1 showed 19,200 white blood cells/μL (normal range: 3,700–9,400 cells/μL). Infectious disease testing was negative at this time with the exception of a positive rhinovirus detected by polymerase chain reaction (PCR) on a respiratory specimen. Electrolytes and renal function were normal. Analysis of the CSF revealed six white blood cells/μL (normal range: zero to five cells/μL), protein of 62 mg/dL (normal range: 10–45 mg/dL), and glucose of 67 mg/dL (normal range:

MMWR QuickGuide

Recommended Adult Immunization Schedule — United States, 2012

INSIDE

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

45–75 mg/dL). Toxicology screen was negative. Over the next few days, the patient developed ascending flaccid paralysis, decreased level of consciousness, and fever. Magnetic resonance imaging of the brain revealed multiple T2 and flair signal abnormalities in the cortical and subcortical regions as well as in the periventricular white matter, with areas of restriction diffusion. Electromyography was consistent with a severe, primarily demyelinating, predominantly motor polyneuropathy with absence of electrical signals in the distal limb muscles in response to stimulation of the respective motor nerves. The patient was given a short course of ceftriaxone, levofloxacin, and azithromycin to treat possible bacterial pneumonia and *Mycoplasma pneumoniae* encephalitis and was started on levetiracetam for seizure prophylaxis.

On May 4, 2011, the California Encephalitis Project at the California Department of Public Health Viral and Rickettsial Disease Laboratory (VRDL) was asked to urgently test for enterovirus (EV) and West Nile virus (WNV). Enterovirus testing was requested because of the well-described cross-reactivity of EV and rhinovirus in molecular testing. PCR assays for EV and rhinovirus performed on respiratory samples showed no RNA for EV, but rhinovirus was detected. Serologic testing for WNV was negative. VRDL suggested testing for rabies, given the compatible clinical syndrome, and subsequently detected immunoglobulin G (IgG) and immunoglobulin M (IgM) rabies virus–specific antibodies in serum by indirect fluorescent antibody (IFA) testing.

With a presumptive diagnosis of rabies, the patient was sedated with ketamine and midazolam and started on amantadine and nimodipine to prevent cerebral artery vasospasm, and fludrocortisone and hypertonic saline to maintain her sodium at a level >140 mmol/L. Neither human rabies immunoglobulin nor rabies vaccine was administered.

During the first week of hospitalization, the patient developed autonomic instability manifested as significant hypertension. She required esmolol and nicardipine infusions as well as intermittent hydralazine and scheduled amlodipine. She also had frequent episodes of supraventricular tachycardia requiring adenosine. These resolved with repositioning of her central venous catheter. Cerebral artery spasm was not demonstrated by repeated transcranial Doppler ultrasound examinations and CT angiography of the head.

On May 8, the patient moved her head spontaneously. Over the next few days, she moved her head more, then began moving her arms and then her legs. With progressive improvement in her strength, she tolerated extubation on May 16 and was transferred to the pediatric wards 1 week later. On May 31, she was transferred to the rehabilitation service with residual left foot drop. At discharge on June 22, she showed no signs of cognitive impairment and was able to walk and perform activities of daily living.

The *MMWR* series of publications is published by the Office of Surveillance, Epidemiology, and Laboratory Services, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

Suggested citation: Centers for Disease Control and Prevention. [Article title]. MMWR 2012;61:[inclusive page numbers].

Laboratory Diagnostic Testing

Serologic tests of CSF and serum for anti–rabies virus antibody, PCR tests of saliva and a nuchal biopsy for the presence of rabies RNA, and direct fluorescent antibody tests of the nuchal biopsy for rabies virus were performed. Rabies virus–specific antibodies in multiple serum samples collected May 3 through June 9 were detected by IFA at VRDL and CDC. Serum IFA titers peaked on May 11 at 1:64 for IgG and 1:160 for IgM (VRDL results). Rabies virus–specific antibodies also were detected in three separate CSF samples by IFA testing performed at CDC, with peak titers of 1:4 for IgG and 1:8 for IgM on May 8. Rabies virus neutralizing antibody titers were not detected in serum or CSF. Similarly, neither rabies virus antigens nor RNA were detected in any sample.

Extensive testing for other infectious and noninfectious etiologies was performed. The only positive results were *M. pneumoniae* IgM detected by a commercial laboratory. No IgG *M. pneumoniae* seroconversion was documented 4 months after illness onset, but the patient remained IgM-positive. Further testing did detect *M. pneumoniae* nucleic acid by PCR in a respiratory swab but not in CSF. The positive *M. pneumoniae* results were thought to be less significant than the rabies virus diagnostic results because the detection of nucleic acid from a respiratory specimen does not distinguish between infection and colonization and no evidence of *M. pneumoniae* within the central nervous system could be detected. Furthermore, detection of IgM in the absence of IgG seroconversion suggested the possibility of a false positive.

Public Health Investigation

The patient resided in a rural community in Humboldt County, had never traveled outside of California, and had no travel outside the county within 6 months preceding illness onset. She had no history of having received rabies vaccine. The patient confirmed having contact with free-roaming, unvaccinated cats at her school on several occasions. She was scratched by two different cats approximately 9 weeks and 4 weeks before illness onset but reported no bites. Local public health officials implemented a program to collect and identify cats at the school. The first cat was observed to be healthy, but a reliable description of the second cat was not available. All other cats collected at the school remained healthy under observation.

The family owned pot-bellied pigs, pet birds, dogs, and horses. The dogs and birds were reportedly healthy, but one of the horses had died from a presumed colonic torsion in November 2010. Although the patient reportedly had little to no contact with the horse, the horse was exhumed during May 2011 for rabies diagnostic testing. Brain tissue was not ideal for testing, and results were inconclusive. Inspection of the patient's residence by county environmental health staff found no evidence of bat infestation or structural defects that would permit entrance of bats.

Risk assessments performed on 208 classmates and other potential contacts at the patient's school identified two persons with possible exposures to the patient's saliva during April 17–27. Both had contact with the patient during wrestling practice and completed PEP because exposure of mucous membranes or open wounds to the patient's saliva could not be ruled out. Additionally, PEP was administered to eight family members for possible exposure of mucous membranes or open wounds to the patient's saliva. Three pediatric intensive-care unit nurses at the referral hospital and 14 health-care workers at the local ED initiated PEP, although three from the local ED did not complete the series after investigation determined that they did not meet criteria for exposure requiring PEP.

What is already known on this topic?

Survival from clinical rabies is extremely rare if postexposure prophylaxis (PEP) is not administered before the onset of signs or symptoms, even when advanced supportive care is provided.

What is added by this report?

A girl aged 8 years developed progressive paralysis and encephalitis after contact with unvaccinated, free-roaming cats. She was diagnosed with rabies based on her clinical presentation and the presence of rabies virus–specific antibodies and received advanced supportive care, including treatment with therapeutic coma. She was discharged after a 52-day hospitalization. This is the third reported case of recovery from clinical rabies in a patient who had not received rabies vaccination before illness onset and the second such person to survive after receiving advanced supportive care, including therapeutic coma induction.

What are the implications for public health practice?

Clinicians caring for patients with acute progressive encephalitis should consider rabies in the differential diagnosis and pursue laboratory diagnostic testing when indicated. Rabies prevention education should emphasize the importance of domestic animal vaccination, avoidance of wildlife and potentially unvaccinated animals, and prompt PEP after an exposure.

Reported by

Jean Wiedeman, MD, PhD, Jennifer Plant, MD, Univ of California-Davis Medical Center; Carol Glaser, MD, DVM, Sharon Messenger, PhD, Debra Wadford, PhD, Heather Sheriff, Curtis Fritz, DVM, PhD, California Dept of Public Health. Ann Lindsay, MD, Mary McKenzie, Christina Hammond, MPH, MSN, Eric Gordon, County of Humboldt Public Health Br; Charles E. Rupprecht, VMD, PhD, Div of High-Consequence Pathogens and Pathology, National Center for Emerging and

Zoonotic Infectious Diseases; Brett W. Petersen, MD, EIS officer, CDC. ***Corresponding contributor:*** *Brett W. Petersen, bpetersen@cdc.gov, 404-639-5464.*

Editorial Note

Rabies is a neurotropic viral illness, most commonly transmitted to humans from the bite of an infected animal. Although rabies is preventable with PEP, no proven cure exists after the onset of symptoms (*1*). Even with advanced supportive care, the case-fatality rate approaches 100% (*2*). Consequently, management approaches generally focus on palliation (*1,3*). However, in 2004, an adolescent female treated with a novel protocol became the first person to survive documented clinical rabies without previous vaccination (*4*). In 2009, another unvaccinated adolescent female with a history of bat exposure, symptoms of encephalitis, and positive rabies virus serology recovered from a presumed abortive rabies infection after receiving only basic supportive care (*5*). The patient described in this report is the third unvaccinated person to recover from clinical rabies in the United States.

Antemortem diagnosis of human rabies should include laboratory testing of serum, saliva, CSF, and a nuchal skin biopsy to optimize diagnostic yield because any one test can be variably positive. Detection of viral antigen by direct fluorescent antibody testing, isolation of rabies virus from saliva or central nervous system tissue, identification of rabies virus–specific antibody in CSF, identification of rabies virus–specific antibody in the serum of an unvaccinated person, or detection of viral RNA in saliva, other fluids, or tissue are strong indicators of acute infection. Any one of these findings in a clinically compatible case fulfills the case definition for human rabies established by the Council of State and Territorial Epidemiologists (*6*). Viral isolation, detection of viral antigens, identification of viral nucleic acid, and detection of rabies virus neutralizing antibodies are not specifically required for diagnosis and are not consistently found in all human rabies cases (*2*). Neither infectious virus, viral antigens, nor viral nucleic acid have been detected from any of the reported U.S. survivors of clinical rabies. Experimental studies of abortive rabies in mice have identified, in rare cases, mice that survived infection but did not develop neutralizing antibodies to rabies virus (*7*).

The diagnosis of rabies in this case was based on identification of rabies virus–specific antibodies in serum and CSF in the setting of a compatible clinical syndrome, high-risk animal contact, and absence of a likely alternative diagnosis. The significant pharyngeal dysfunction leading to intubation in this case was especially suggestive of rabies. This degree of dysphagia rarely is observed in other causes of encephalitis, and it influenced the decision to test for rabies. The diagnosis of rabies was made 3 days after hospital admission. This relatively early diagnosis likely minimized the number of health-care workers and others who had unprotected contact with the patient during the time in which she could potentially shed virus. Early diagnosis also might have affected the clinical outcome by focusing treatment at an early stage. Clinicians caring for patients with acute progressive encephalitis should consider rabies in the differential diagnosis and coordinate with health departments for laboratory diagnostic testing when indicated. Once a diagnosis of rabies has been established, clinical management should focus primarily on comfort care and adequate sedation of the patient (*1,3*). Experimental treatment might be considered after detailed discussions and informed consent by the patient, family, or legal representatives, particularly if the patient is young, healthy, and at an early stage of clinical disease (*1*).

The only reported suspicious animal contact that the patient experienced was with unvaccinated cats at her school. Although rabies was not identified in any cats from the school, the most recent rabid cat in California was reported in 2008 from the same California county in which the patient lived. A total of 303 rabid cats were reported in the United States in 2010, and two cases of human rabies have been attributed to cats since 1960 (*8–10*). All domestic cats, dogs, and ferrets should be vaccinated against rabies. Public education should emphasize avoidance of all wild and potentially unvaccinated animals and the importance of seeking medical evaluation for exposures to suspect rabid animals.

Acknowledgments

Staff members of the Humboldt County Dept of Health and Human Svcs; Edward Powers, DVM, and other staff members of the California Dept of Public Health. Rodney Willoughby, MD, Medical College of Wisconsin. Jesse Blanton, MPH, Richard Franka, DVM, PhD, Ivan Kuzmin, MD, PhD, Felix Jackson, MS, Michael Niezgoda, MS, Lillian Orciari, MS, Sergio Recuenco, MD, DrPH, Andres Velasco-Villa, PhD, Pamela Yager, Div of High-Consequence Pathogens and Pathology, National Center for Emerging and Zoonotic Infectious Diseases, CDC.

References

1. CDC. Human rabies prevention—United States, 2008: recommendations of the Advisory Committee on Immunization Practices. MMWR 2008;57(No. RR-3).
2. Petersen BW, Rupprecht CE. Human rabies epidemiology and diagnosis. In: Tkachev S, ed. Non-Flavivirus encephalitis. Rijeka, Croatia: InTech; 2011. Available at http://www.intechopen.com/articles/show/title/human-rabies-epidemiology-and-diagnosis. Accessed January 31, 2012.
3. Jackson AC, Warrell MJ, Rupprecht CE, et al. Management of rabies in humans. Clin Infect Dis 2003;36:60–3.

4. Willoughby RE Jr, Tieves KS, Hoffman GM, et al. Survival after treatment of rabies with induction of coma. N Engl J Med 2005; 352:2508–14.
5. CDC. Presumptive abortive human rabies—Texas, 2009. MMWR 2010;59:185–90.
6. Council of State and Territorial Epidemiologists. Human rabies case definition. Atlanta, GA: Council of State and Territorial Epidemiologists; 2011. Available at http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/rabies_human_current.htm. Accessed January 24, 2012.
7. Bell JF. Abortive rabies infection. I. Experimental production in white mice and general discussion. J Infect Dis 1964;114:249–57.
8. Blanton JD, Palmer D, Dyer J, Rupprecht CE. Rabies surveillance in the United States during 2010. J Am Vet Med Assoc 2011;239:773–83.
9. Ross E, Armentrout SA. Myocarditis associated with rabies. Report of a case. N Engl J Med 1962;266:1087–9.
10. Sung JH, Hayano M, Mastri AR, Okagaki T. A case of human rabies and ultrastructure of the Negri body. J Neuropathol Exp Neurol 1976;35:541–59.

Adult Vaccination Coverage — United States, 2010

Immunizations are recommended throughout life to prevent infectious diseases and their sequelae. Adult coverage, however, remains low for most routinely recommended vaccines (*1*) and well below *Healthy People 2020* targets. In October 2011, the Advisory Committee on Immunization Practices (ACIP) approved the adult immunization schedule for 2012 (*2*). Apart from influenza vaccination, which is now recommended for all adults, other adult vaccines target different populations based on age, certain medical conditions, behavioral risk factors (e.g., injection drug use), occupation, travel, and other indications (*2*). To assess adult (≥19 years) vaccination coverage for select vaccines, CDC analyzed data from the 2010 National Health Interview Survey (NHIS). This report summarizes the results of that analysis for pneumococcal, hepatitis A, hepatitis B, herpes zoster (shingles), and human papillomavirus (HPV) vaccines, as well as tetanus antigen–containing vaccines (including tetanus, diphtheria, and acellular pertussis vaccine [Tdap]), by selected characteristics (age, vaccination target group status, and race/ethnicity). Influenza vaccination coverage estimates for the 2010–11 influenza season have been published separately (*3*). Compared with results of the 2009 NHIS survey (*1*), increases in coverage were observed only for Tdap vaccination for persons aged 19–64 years (1.6 percentage point increase to 8.2%), zoster vaccination among persons aged ≥60 years (4.4 percentage point increase to 14.4%), and ≥1 dose HPV vaccination in women aged 19–26 years (3.6 percentage point increase to 20.7%); coverage for the other vaccines was unchanged at <70%. These data indicate only limited recent improvements in vaccination coverage among adults in the United States. Substantial increases are needed to reduce the occurrence of vaccine-preventable diseases among adults.

NHIS collects information about the health and health care of the noninstitutionalized, civilian population in the United States using nationally representative samples. Interviews are conducted in respondents' homes. Questions about receipt of recommended adult vaccinations are asked of a randomly selected adult within the household. Definitions of high risk conditions* are based on ACIP recommendations for each vaccine (*2*). Additional analyses were conducted to estimate baseline coverage of persons with diabetes who recently were recommended for hepatitis B vaccination and for males recommended for quadrivalent HPV vaccination if aged ≤21 years or aged 22–26 years and at higher risk for HPV infection (*4,5*). Weighted data† were used to produce national estimates. Point estimates and estimates of corresponding variances were calculated using statistical software to account for the complex sample design. Statistical significance was defined as $p<0.05$.

Pneumococcal Vaccination Coverage

Pneumococcal vaccination coverage among high-risk adults aged 19–64 years was 18.5% overall (Table 1). Coverage among high-risk non-Hispanic whites aged 19–64 years was higher (19.0%) compared with Hispanics (14.8%) and non-Hispanic Asians (11.5%), but coverage was not significantly different for other racial/ethnic groups (Table 1). Among adults aged ≥65 years, coverage was 59.7% overall. Non-Hispanic whites aged ≥65 years had higher vaccination coverage (63.5%) compared with Hispanics (39.0%), non-Hispanic blacks (46.2%), and non-Hispanic Asians (48.2%). Neither overall coverage nor coverage for any specific age or racial/ethnic group differed significantly from 2009 coverage.

* Adults were considered at high risk for pneumococcal disease if they had ever been told by a doctor or other health professional that they had diabetes, emphysema, coronary heart disease, angina, heart attack, or other heart condition; had a diagnosis of cancer during the previous 12 months (excluding nonmelanoma skin cancer); had ever been told by a doctor or other health professional that they had lymphoma, leukemia, or blood cancer; or they had been told by a doctor or other health professional that they had chronic bronchitis or weak or failing kidneys during the preceding 12 months; or had an asthma episode or attack; or were current smokers. Adults were considered at high risk for hepatitis A or B if they had hemophilia and had received clotting factor concentrations, were a man who had sex with other men, had taken street drugs by needle, had traded sex for money or drugs, had tested positive for human immunodeficiency virus (HIV), or had sex with someone who would meet any of the previous criteria; considered themselves at high risk for HIV infection, or reported having a sexually transmitted diseases other than HIV or acquired immunodeficiency syndrome (AIDS) during the previous 5 years.

† Additional information on NHIS methods is available at http://www.cdc.gov/nchs/nhis/methods.htm.

TABLE 1. Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk status,* and race/ethnicity† — National Health Interview Survey, United States, 2010

Characteristic	Sample size	%	(95% CI)	Difference from 2009
Pneumococcal vaccination, ever§				
19–64 yrs, high risk				
Total	**7,624**	**18.5**	**(17.4–19.6)**	**1.0**
White, single race, not Hispanic or Latino	4,478	19.0	(17.7–20.4)	0.8
Black, single race, not Hispanic or Latino	1,388	18.6	(16.4–21.1)	0.9
Hispanic or Latino	1,239	14.8	(12.7–17.2)¶	2.7
Asian, single race, not Hispanic or Latino	296	11.5	(7.9–16.5)¶	-4.8
Other race/ethnicity	223	26.0	(19.2–34.3)	6.8
≥65 yrs				
Total	**5,209**	**59.7**	**(58.0–61.4)**	**-1.0**
White, single race, not Hispanic or Latino	3,577	63.5	(61.6–65.4)	-1.3
Black, single race, not Hispanic or Latino	781	46.2	(41.8–50.6)¶	1.5
Hispanic or Latino	551	39.0	(34.2–43.9)¶	-1.2
Asian, single race, not Hispanic or Latino	246	48.2	(41.6–54.9)¶	3.3
Other race/ethnicity	54	58.4	(40.9–74.1)	4.1
Tetanus vaccination, past 10 years**				
19–49 yrs				
Total	**13,946**	**64.0**	**(63.0–65.0)**	**0.9**
White, single race, not Hispanic or Latino	7,061	69.3	(68.0–70.6)	1.0
Black, single race, not Hispanic or Latino	2,266	56.8	(54.1–59.4)¶	0.0
Hispanic or Latino	3,355	54.4	(52.4–56.5)¶	0.7
Asian, single race, not Hispanic or Latino	972	50.3	(45.8–54.7)¶	2.8
Other race/ethnicity	292	62.2	(55.8–68.3)¶	4.6
50–64 yrs				
Total	**6,349**	**63.4**	**(62.0–64.8)**	**0.6**
White, single race, not Hispanic or Latino	3,966	67.3	(65.6–69.0)	1.0
Black, single race, not Hispanic or Latino	1,065	52.7	(48.6–56.8)¶	0.4
Hispanic or Latino	864	50.9	(46.7–55.1)¶	-2.6
Asian, single race, not Hispanic or Latino	323	47.8	(40.9–54.8)¶	-1.0
Other race/ethnicity	131	68.4	(59.0–76.5)	3.5
≥65 yrs				
Total	**5,069**	**53.4**	**(51.5–55.2)**	**0.6**
White, single race, not Hispanic or Latino	3,462	56.3	(54.2–58.5)	1.4
Black, single race, not Hispanic or Latino	765	39.7	(35.6–44.0)¶	-1.8
Hispanic or Latino	545	43.8	(39.1–48.6)¶	-2.8
Asian, single race, not Hispanic or Latino	241	36.5	(29.2–44.5)¶	-1.7
Other race/ethnicity	56	62.0	(46.7–75.2)	-9.0

See table footnotes on page 68.

TABLE 1. (*Continued*) Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk status,* and race/ethnicity† — National Health Interview Survey, United States, 2010

Characteristic	Sample size	%	(95% CI)	Difference from 2009
Tetanus vaccination, including pertussis vaccine, past 5 yrs††				
19–64 yrs				
Total	**14,824**	**8.2**	**(7.6–8.8)**	**1.6§§**
White, single race, not Hispanic or Latino	7,830	9.1	(8.3–9.9)	1.7§§
Black, single race, not Hispanic or Latino	2,441	7.4	(6.1–8.8)¶	1.6
Hispanic or Latino	3,183	4.8	(3.9–5.9)¶	0.1
Asian, single race, not Hispanic or Latino	1,058	9.2	(6.9–12.1)	4.8§§
Other race/ethnicity	312	8.4	(5.7–12.4)	1.4
Living with an infant aged <1 yr	624	10.6	(7.9–14.2)	0.3
Not living with an infant aged <1 yr	14,200	8.1	(7.5–8.7)	1.7§§
Hepatitis A vaccination (≥2 doses), ever¶¶				
19–49 yrs				
Total	**12,607**	**10.7**	**(10.0–11.5)**	**0.9**
White, single race, not Hispanic or Latino	6,432	10.4	(9.4–11.4)	0.5
Black, single race, not Hispanic or Latino	2,068	10.3	(8.8–12.0)	1.5
Hispanic or Latino	3,012	10.3	(8.9–12.0)	1.8
Asian, single race, not Hispanic or Latino	846	15.3	(12.2–19.0)¶	-0.5
Other race/ethnicity	249	16.5	(11.3–23.3)¶	4.7
Had traveled outside the United States (except to Europe, Japan, Australia, New Zealand, or Canada) since 1995	4,595	16.6	(15.2–18.2)	1.6
Had not traveled outside the United States (except to Europe, Japan, Australia, New Zealand, or Canada) since 1995	7,998	7.5	(6.7–8.3)	0.3
High risk, overall	981	14.6	(12.1–17.6)	0.4
With chronic liver conditions, overall	100	19.7	(11.8–31.1)	-1.9
Hepatitis B vaccination (≥3 doses), ever***				
19–49 yrs, high risk				
Total	**1,023**	**42.0**	**(38.3–45.8)**	**0.2**
White, single race, not Hispanic or Latino	504	44.5	(39.4–49.8)	1.7
Black, single race, not Hispanic or Latino	242	41.6	(35.0–48.5)	-1.6
Hispanic or Latino	208	33.8	(26.2–42.3)¶	-2.9
Asian, single race, not Hispanic or Latino	40	40.2	(25.5–56.9)	13.6
Other race/ethnicity	—†††	—	—	—
19–59 yrs, with diabetes, overall	**1,045**	**22.8**	**(19.9–25.9)**	**-0.3**
≥60 yrs, with diabetes, overall	**1,480**	**10.9**	**(9.2–13.0)**	**0.8**
19–49 yrs, non-high risk				
Total	**11,941**	**33.1**	**(32.0–34.3)**	**-0.6**
White, single race, not Hispanic or Latino	6,089	34.9	(33.4–36.4)	-0.7
Black, single race, not Hispanic or Latino	1,873	33.6	(31.0–36.3)	-1.7
Hispanic or Latino	2,867	24.7	(22.7–26.9)¶	0.4
Asian, single race, not Hispanic or Latino	884	37.2	(33.2–41.5)	0.7
Other race/ethnicity	228	37.9	(29.9–46.6)	-0.8

See table footnotes on page 68.

TABLE 1. (*Continued*) Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk status,* and race/ethnicity† — National Health Interview Survey, United States, 2010

Characteristic	Sample size	%	(95% CI)	Difference from 2009
Herpes zoster (shingles) vaccination, ever§§§				
≥60 yrs				
Total	**7,290**	**14.4**	**(13.4–15.4)**	**4.4§§**
White, single race, not Hispanic or Latino	4,978	16.6	(15.4–17.8)	5.3§§
Black, single race, not Hispanic or Latino	1,079	4.5	(3.4–5.9)¶	0.3
Hispanic or Latino	796	4.4	(3.2–6.2)¶	-0.4
Asian, single race, not Hispanic or Latino	349	12.7	(9.4–17.0)¶	5.8§§
Other race/ethnicity	88	8.2	(3.8–16.6)¶	2.0
Human papillomavirus (HPV) vaccination among females (≥1 dose), ever¶¶¶				
19–26 yrs				
Total	**1,718**	**20.7**	**(18.2–23.5)**	**3.6§§**
White, single race, not Hispanic or Latino	838	22.4	(18.9–26.3)	2.3
Black, single race, not Hispanic or Latino	320	20.4	(14.7–27.6)	7.1
Hispanic or Latino	397	15.1	(11.6–19.5)¶	2.5
Asian, single race, not Hispanic or Latino	112	22.6	(13.5–35.4)	10.7
Other race/ethnicity	51	16.5	(8.1–30.6)	6.2
HPV vaccination among males (≥1 dose), ever¶¶¶				
19–26 yrs, total	**1,474**	**0.6**	**(0.3–1.1)**	**—******
19–21 yrs, total	**502**	**0.3**	**(0.1–1.0)**	**—******

Abbreviation: CI = confidence interval.

* Adults were considered at high risk for pneumococcal disease if they had ever been told by a doctor or other health professional that they had diabetes, emphysema, coronary heart disease, angina, heart attack, or other heart condition; had a diagnosis of cancer during the previous 12 months (excluding nonmelanoma skin cancer); had ever been told by a doctor or other health professional that they had lymphoma, leukemia, or blood cancer; or they had been told by a doctor or other health professional that they had chronic bronchitis or weak or failing kidneys during the preceding 12 months or had an asthma episode or attack; or they were current smokers. Adults were considered at high risk for hepatitis A or B if they had hemophilia and had received clotting factor concentrations, were a man who had sex with other men, had taken street drugs by needle, had traded sex for money or drugs, had tested positive for human immunodeficiency virus (HIV), or had sex with someone who would meet any of the previous criteria; considered themselves at high risk for HIV infection, or reported having a sexually transmitted diseases other than HIV or acquired immune deficiency syndrome (AIDS) during the previous 5 years.

† Persons of Hispanic or Latino ethnicity might be of any race or combination of races. Other race/ethnicity included American Indian/Alaska Native and multiple races.

§ Respondents were asked if they had ever had a pneumonia shot.

¶ p<0.05 by t-test for comparisons with non-Hispanic white as the reference.

** Respondents were asked if they had received a tetanus shot in the past 10 years. Respondents included adults who received tetanus-diphtheria toxoid (Td) during the past 10 years or tetanus, diphtheria, and acellular pertussis vaccine (Tdap) during 2005–2010.

TABLE 1. (*Continued*) Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk status,* and race/ethnicity† — National Health Interview Survey, United States, 2010

†† Respondents who had received a tetanus shot in the past 10 years were asked if their most recent shot was given in 2005 or later. Respondents who had received a tetanus shot since 2005 were asked if they were told that their most recent tetanus shot included the pertussis or whooping cough vaccine. Among 21,041 respondents aged 19–64 years, those without a "yes" or "no" classification for tetanus vaccination status within the preceding 10 years (n = 1,081 [5.1%]), for tetanus vaccination status during 2005–2010 (n = 589 [2.8%]), or Tdap vaccine status during 2005–2010 (n = 4,789 [22.8%]) were excluded, yielding a sample of 14,582 respondents aged 19–64 years for whom Tdap vaccination status could be assessed. Advisory Committee on Immunization Practices (ACIP) recommendations on use of Tdap in certain adults aged ≥65 years are available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm?s_cid=mm6001a4_w.

§§ p<0.05 by t-test for comparisons between 2010 and 2009 within each level of each characteristic.

¶¶ Respondents were asked if they had ever received the hepatitis A vaccine, and if yes, how many shots were received.

*** Respondents were asked if they had ever received the hepatitis B vaccine, and if yes, if they had received ≥3 doses or <3 doses.

††† Estimates are not reliable because of small sample size (n<30) or relative standard error (standard error/estimates) >0.3.

§§§ Respondents were asked if they had ever received a shingles vaccine.

¶¶¶ Respondents were asked if they had ever received the HPV shot or cervical cancer vaccine.

**** Data not applicable.

Tetanus Vaccination Coverage

In 2010, the proportion of adults receiving any tetanus toxoid–containing vaccination (i.e., tetanus and diphtheria toxoid [Td] or Tdap) during the past 10 years was 64.0% for adults aged 19–49 years, 63.4% for adults aged 50–64 years, and 53.4% for adults aged ≥65 years (Table 1). The proportion of adults receiving tetanus vaccination during the past 10 years across all age groups did not change compared with 2009 (*1*). Non-Hispanic whites had higher coverage across all age groups compared with non-Hispanic Asians, Hispanics, and non-Hispanic blacks.

Among adults aged 19–64 years for whom Tdap status specifically could be assessed, Tdap vaccination coverage was 8.2% (Table 1). Tdap coverage was estimated after excluding respondents without a "yes" or "no" classification for tetanus vaccination status within the preceding 10 years (n = 1,081 [5.1%] of 21,041) or tetanus vaccination status during 2005–2010 (n = 589 [2.8%] of 21,041), and those who reported tetanus vaccination during 2005–2010, but were not told (n = 4,124 [19.6%] of 21,041) or did not know the vaccine type (Td or Tdap) (n = 665 [3.2%] of 21,041). Among 7,088 respondents who received a tetanus vaccination during 2005–2010, 58.9% reported that they were not informed of the vaccination type, and 9.6% could not recall what type of tetanus vaccination they had received (Table 2). Of the remaining respondents, 52.3% reported receiving Tdap (Table 2).

TABLE 2. Type of tetanus vaccine received and proportions that were tetanus, diphtheria, acellular pertussis (Tdap) vaccine, among adults aged 19–64 years who received a tetanus vaccination, by selected characteristics — National Health Interview Survey, United States, 2010

	Type of vaccine received among those who received a tetanus vaccination during 2005–2010									Proportions of total tetanus vaccinations during 2005–2010* that were Tdap		
		Received Tdap		Received other tetanus vaccine		Doctor did not inform the patient		Could not recall vaccine type				
Characteristic	No. in sample	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	No. in sample	%	(95% CI)
Adults aged 19–64 yrs	7,088	16.5	(15.4–17.6)	15.1	(14.0–16.1)	58.9	(57.3–60.5)	9.6	(8.7–10.5)	2,198	52.3	(49.6–54.9)
Health-care personnel	887	31.3	(27.7–35.1)	18.2	(15.3–21.6)	42.4	(38.3–46.6)	8.1	(6.3–10.4)	432	63.2†	(57.5–68.5)

Abbreviation: CI = confidence interval.

* Calculated by dividing number of respondents who reported receiving Tdap by the sum of those who reported receiving Tdap and those who reported receiving other tetanus vaccination; respondents who reported that the doctor did not inform them of the vaccine type they received and those who could not recall the vaccine type were excluded.

† p<0.05 by t-test for comparisons between health-care personnel and all adults aged 19–64 years.

Compared with 2009, Tdap coverage increased for persons aged 19–64 years overall (1.6 percentage point increase to 8.2%), and among non-Hispanic Asians (4.8 percentage point increase to 9.2%), non-Hispanic whites (1.7 percentage point increase to 9.1%), and persons without household contact with an infant aged <1 year[§] (1.7 percentage point increase to 8.1%); however, Tdap coverage remained low (Table 1). Non-Hispanic whites had higher Tdap coverage (9.1%) compared with non-Hispanic blacks (7.4%) and Hispanics (4.8%). Tdap coverage for persons with household contact with an infant aged <1 year (10.6%) was similar to coverage for non-Hispanic whites (Table 1).

During 2005–2010, Tdap vaccination of health-care personnel (HCP) overall (20.3%) was higher compared with the 2009 estimate (13.2%) (Table 3). Non-Hispanic white HCP had higher Tdap coverage (21.5%) compared with non-Hispanic black HCP (14.0%) and Hispanic HCP (13.8%). HCP were more likely to have received Tdap as a tetanus vaccination (63.2%) than adults who were not HCP (52.3%) (Table 2).

Hepatitis A Vaccination Coverage

Hepatitis A vaccination coverage (≥2 doses) among adults aged 19–49 years was low overall (10.7%), and similar to the estimate for 2009 (9.8%). Vaccination coverage among adults aged 19–49 years was higher (16.6% versus 7.5%) among persons who traveled to countries of high or intermediate endemicity outside the United States (other than to Europe, Japan, Australia, New Zealand, or Canada) since 1995, compared with respondents who traveled only within the United States, Europe, Japan, Australia, New Zealand, or Canada (Table 1).

[§] A single dose of Tdap is recommended for adults who have or who anticipate having close contact with an infant aged <1 year (e.g., parents, grandparents aged <65 years [adults ≥65 may receive Tdap], child-care providers, and health-care personnel) to reduce the risk for transmitting pertussis.

Coverage was higher for non-Hispanic Asians (15.3%) and adults aged 19–49 years who indicated a race other than Asian, black or white and non-Hispanic ethnicity (16.5%) than for other groups (Table 1).

Hepatitis B Vaccination Coverage

In 2010, hepatitis B vaccination coverage (≥3 doses) among adults aged 19–49 years at high risk for infection (42.0%) was similar to the 2009 estimate (41.8%) (Table 1). Vaccination coverage for persons aged 19–49 years at high risk for infection was 44.5% for non-Hispanic whites, 41.6% for non-Hispanic blacks, and 40.2% for non-Hispanic Asians, but was lower for Hispanics (33.8%) compared with non-Hispanic whites. Overall, vaccination coverage was higher for adults aged 19–49 years at high risk for infection (42.0%), compared with adults aged 19–49 years not at high risk for infection (33.1%). Vaccination coverage for persons with diabetes aged 19–59 years and ≥60 years was 22.8% and 10.9%, respectively. Overall, hepatitis B vaccination coverage among HCP was 63.2%; coverage did not differ significantly across racial/ethnic groups (Table 3) nor when compared with 2009 coverage.

Herpes Zoster Vaccination Coverage

In 2010, 14.4% of adults aged ≥60 years reported receiving herpes zoster vaccination to prevent shingles, an increase from the 10.0% reported in 2009 (Table 1). Non-Hispanic whites aged ≥60 years had higher herpes zoster vaccination coverage (16.6%) compared with all other race/ethnic groups (Table 1). Coverage for non-Hispanic whites and non-Hispanic Asians aged ≥60 years increased more than 5 percentage points compared with herpes zoster vaccination coverage estimates in 2009 (Table 1).

TABLE 3. Estimated proportion of health-care personnel (HCP)* who received selected vaccinations, by race/ethnicity — National Health Interview Survey, United States, 2010

Characteristic†	Sample size	%	(95% CI)	Difference from 2009
HCP aged <65 yrs who received a tetanus vaccination, including pertussis vaccine, past 5 yrs§				
Total	**1,427**	**20.3**	**(17.9–23.0)**	**7.1¶**
White, single race, not Hispanic or Latino	830	21.5	(18.4–25.0)	8.1¶
Black, single race, not Hispanic or Latino	239	14.0	(9.2–20.8)**	0.9
Hispanic or Latino	197	13.8	(8.8–21.0)**	-0.1
Asian, single race, not Hispanic or Latino	135	26.9	(17.0–39.8)	20.9¶
Other race/ethnicity	—††	—	—	—
HCP aged ≥19 yrs who ever received a hepatitis B vaccination (≥3 doses)§§				
Total	**1,960**	**63.2**	**(60.7–65.7)**	**3.0**
White, single race, not Hispanic or Latino	1,147	63.7	(60.7–66.7)	3.1
Black, single race, not Hispanic or Latino	334	58.7	(53.1–64.2)	-8.4
Hispanic or Latino	271	57.0	(49.8–64.0)	3.7
Asian, single race, not Hispanic or Latino	169	72.7	(62.5–81.0)	7.8
Other race/ethnicity	39	70.2	(48.1–85.7)	11.2

Abbreviation: CI = confidence interval.

* Adults were classified as HCP if they currently volunteer or work in a hospital, medical clinic, doctor's office, dentist's office, nursing home, or some other health-care facility including part-time and unpaid work in a health-care facility or professional nursing care provided in the home.

† Persons of Hispanic or Latino ethnicity might be of any race or combination of races. Other race/ethnicity included American Indian/Alaska Native and multiple races.

§ Respondents who had received a tetanus shot in the past 10 years were asked if their most recent shot was given in 2005 or later. Respondents who had received a tetanus shot since 2005 were asked if they were told that their most recent tetanus shot included the pertussis or whooping cough vaccine. Among 1,850 HCP aged 19–64 years, those without a "yes" or "no" classification for tetanus vaccination status within the preceding 10 years (n = 47 [2.5%]), for tetanus vaccination status during 2005–2010 (n = 61 [3.3%]), or tetanus, diphtheria, and acellular pertussis (Tdap) vaccine status during 2005–2010 (n = 451 [24.4%]) were excluded, yielding a sample of 1,427 respondents aged 19–64 years for whom Tdap vaccination status could be assessed. Advisory Committee on Immunization Practices (ACIP) recommendations on use of Tdap in certain adults aged ≥65 years are available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm?s_cid=mm6001a4_w.

¶ p<0.05 by t-test for comparisons between 2010 and 2009 within each level of each characteristic.

** p<0.05 by t-test for comparisons with non-Hispanic white as the reference.

†† Estimates are not reliable because of small sample size (n <30) or relative standard error (standard error/estimates) >0.3.

§§ Respondents were asked if they had ever received the hepatitis B vaccine, and if yes, if they had received >3 doses or <3 doses.

Human Papillomavirus (HPV) Vaccination Coverage

In 2010, 20.7% of women aged 19–26 years reported receipt of ≥1 dose of HPV vaccine, an increase from 17.1% reported for 2009 (Table 1), and a further increase from 10.5% reported for 2008 (*1,6*). Hispanics had lower coverage (15.1%) compared with non-Hispanic whites (22.4%), but coverage across racial/ethnic groups otherwise did not differ (Table 1). Fewer than 1% of males aged 19–26 years received ≥1 dose of HPV vaccine in 2010 (Table 1).

What is already known on this topic?

From 2008 to 2009, U.S. coverage with routinely recommended vaccinations among adults aged ≥19 years remained low.

What is added by this report?

Compared with 2009 estimates, tetanus, diphtheria, and acellular pertussis (Tdap) vaccination in 2010 increased to 8.2%, herpes zoster vaccination for non-Hispanic whites and non-Hispanic Asians aged ≥60 years increased to 16.6% and 12.7%, respectively, and women aged 19–26 years reporting receipt of ≥1 dose of human papillomavirus (HPV) vaccine increased to 20.7%. New populations were advised in October 2011 to receive hepatitis B and HPV vaccination. Among persons with diabetes, hepatitis B vaccination coverage in 2010 was 22.8% for those aged 19–59 years and 10.9% for those aged ≥60 years. Among males aged 19–26 years, <1% had received ≥1 dose of HPV vaccine as of 2010.

What are the implications for public health practice?

Coverage remains low for most vaccines routinely recommended for adults. Wider use of practices shown to improve adult vaccination is needed, including implementing reminder-recall systems, use of standing order programs for vaccination, and assessment of practice-level vaccination rates with feedback to staff members.

Reported by

Walter W. Williams, MD, Peng-Jun Lu, MD, PhD, James A. Singleton, MS, Carolyn B. Bridges, MD, Pascale M. Wortley, MD, Immunization Services Div, National Center for Immunization and Respiratory Diseases; Kathy K. Byrd, MD, Div of Viral Hepatitis, Lauri E. Markowitz, MD, Div of Sexually Transmitted Disease Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC. ***Corresponding contributor:*** *Walter W. Williams, www1@cdc.gov, 404-718-8734.*

Editorial Note

In 2010, noninfluenza adult vaccination coverage was similar to 2009, except for modest increases in Tdap, HPV, and zoster vaccine coverage in certain groups. Many adults have not received one or more recommended vaccines. Vaccination coverage estimates for the three vaccines in this report that are included in *Healthy People 2020* (pneumococcal, herpes zoster, and hepatitis B [for HCP] vaccines) are well below the respective target levels¶ of 90% for persons aged >65 years and 60% for persons aged 18–64 years at high risk (pneumococcal vaccine),

¶ *Healthy People 2020* objectives and targets for immunization and infectious diseases are available at http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=23.

30% (herpes zoster vaccine), and 90% (hepatitis vaccine [for HCP]). These data indicate little progress was made in improving adult coverage in the past year and highlight the need for continuing efforts to increase adult vaccination coverage.

In October 2011, ACIP recommended hepatitis B vaccination of previously unvaccinated adults aged <60 years who have diabetes as soon as possible after diabetes is diagnosed, and that adults aged ≥60 years with diabetes be considered for hepatitis B vaccination after assessing their risk and likelihood of immune response (*2,4*). The recommendations were based on findings from studies indicating increased risk for contracting acute hepatitis B among persons with diabetes (*7,8*) and a trend for higher mortality among acute hepatitis B virus–infected persons with diabetes compared with persons without diabetes (CDC, unpublished data, 2011).

Assisted monitoring of blood glucose and other procedures in which instruments or parenteral treatments are used in different persons sequentially without appropriate infection control procedures can result in percutaneous exposure to hepatitis B virus. Increasing hepatitis B vaccination among persons with diabetes and improving infection control practices during diabetes monitoring and care might decrease the occurrence of hepatitis B infection in this population. Diabetes will be included as a risk factor for hepatitis B infection in future determinations of overall coverage among persons with high-risk conditions.

Also in October 2011, ACIP recommended routine HPV vaccination for males aged 11–12 years and vaccination of males aged 13–21 years who have not been vaccinated previously; males aged 22–26 years also may be vaccinated against HPV. For immunocompromised males (including males with human immunodeficiency virus [HIV] infection), and for men who have sex with men, ACIP recommended routine vaccination through age 26 years for those not vaccinated previously (*2,5*). These recommendations replace the October 2009 ACIP guidance that HPV vaccine may be given to males aged 9–26 years. Since 2006, ACIP has recommended routine HPV vaccination for females aged 11–12 years and vaccination of females aged 13–26 years who previously have not been vaccinated against HPV (*2*). The percentage of age-eligible females administered HPV vaccine is low but increasing. The primary target group for HPV vaccine is girls and boys aged 11–12 years.

The findings in this report are subject to at least two limitations. First, the determination of vaccination status and identification of high-risk conditions in NHIS were not validated by medical records. Self-report of vaccination is subject to recall bias and might result in overestimation of rates. Adult self-reported pneumococcal vaccination status, however, has been shown to be sensitive and specific (*9*). Second, the Tdap estimate is subject to considerable uncertainty. Many respondents were excluded from estimations of Tdap coverage, creating a potential for bias. All respondents who reported a tetanus vaccination during 2005–2010, but were unable to say whether Td or Tdap was used, were excluded. Sensitivity calculations were conducted to assess the magnitude of potential bias. Depending on what proportion of excluded respondents actually received Tdap, actual Tdap coverage could fall within the range of 6.1%–31.6%. Comparisons of Tdap coverage across years within subgroups might be affected by bias resulting from excluding persons who did not report the type of tetanus vaccine they received.

Substantial improvement in adult vaccination is needed to reduce the health consequences of vaccine-preventable diseases among adults. Successful vaccination programs combine education of potential vaccine recipients and publicity to promote vaccination, increased access to vaccination services in medical and complementary settings such as workplaces and commercial establishments (e.g., pharmacies), and use of practices shown to improve vaccination coverage, including reminder-recall systems, efforts to remove administrative and financial barriers to vaccination, use of standing order programs for vaccination, and assessment of practice-level vaccination rates with feedback to staff members (*10*). Annual publication of the adult immunization schedule (*2*) provides the most current recommendations for vaccinating adults and can provide a ready resource for persons who administer vaccine to adults in various settings.

References

1. CDC. Adult vaccination coverage reported via National Health Interview Survey (NHIS). Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://www.cdc.gov/vaccines/stats-surv/nhis/default.htm. Accessed January 9, 2012.
2. CDC. Recommended adult immunization schedule—United States, 2012. MMWR 2012;61:(4).
3. CDC. Final state specific influenza vaccination coverage estimates for the 2010–11 season—United States, National Immunization Survey and Behavioral Risk Factor Surveillance System, August 2010 through May 2011. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://www.cdc.gov/flu/professionals/vaccination/coverage_1011estimates.htm. Accessed January 9, 2012.
4. CDC. Use of hepatitis B vaccination for adults with diabetes mellitus: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2011;60:1709–11.
5. CDC. Recommendations on the use of quadrivalent human papillomavirus vaccine in males—Advisory Committee on Immunization Practices (ACIP), 2011. MMWR 2011;60:1705–8.
6. CDC. Vaccination coverage estimates from the National Health Interview Survey: United States, 2008. Atlanta, GA: US Department of Health and Human Services, CDC; 2009. Available at http://www.cdc.gov/nchs/data/hestat/vaccine_coverage/vaccine_coverage.htm. Accessed December 12, 2011.

7. Reilly ML, Poissant T, Vonderwahl CW, Gerard K, Murphy TV. Incidence of acute hepatitis B among adults with and without diabetes, 2009–2010. Presented at the 49th Annual Meeting of the Infectious Disease Society of America and the HIV Medicine Association, October 20–23, 2011; Boston, MA. Arlington, VA: Infectious Disease Society of America; 2011.
8. CDC. Viral hepatitis surveillance—United States, 2009. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://www.cdc.gov/hepatitis/statistics/2009surveillance/index.htm. Accessed December 19, 2011.
9. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015–20.
10. Task Force on Community Prevention Services. The guide to community preventive services. New York, NY: Oxford University Press; 2005. Available at http://www.thecommunityguide.org/library/book/index.html. Accessed December 19, 2011.

Progress in Global Measles Control, 2000–2010

In 1980, before widespread global use of measles vaccine, an estimated 2.6 million measles deaths occurred worldwide (*1*). In 2001, to accelerate the reduction in measles cases achieved by vaccination, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) developed a strategy to deliver 2 doses of measles-containing vaccine (MCV) to all children through routine services and supplementary immunization activities (SIAs) and improved disease surveillance (*2*). After implementation of this strategy, the estimated number of annual measles deaths worldwide decreased from 733,000 in 2000 to 164,000 in 2008 (*3*). In 2010, the World Health Assembly endorsed the following measles objectives for 2015: 1) raise routine coverage with the first dose of MCV (MCV1) for children aged 1 year to ≥90% nationally and ≥80% in every district or equivalent administrative unit, 2) reduce and maintain annual measles incidence at <5 cases per million, and 3) reduce measles mortality by ≥95% from the 2000 estimate (*4*). During 2000–2010, global MCV1 coverage increased from 72% to 85% with approximately 1 billion children vaccinated during measles SIAs. Reported measles cases decreased from 2000 to 2008, remained stable in 2009, and increased in 2010. By the end of 2010, 40% of countries still had not met the incidence target of <5 cases per million. Key challenges must be overcome to meet the 2015 objectives, including 1) declining political and financial commitments to measles control, 2) failure to reach uniform high coverage with 2 doses of MCV through routine services or SIAs, and 3) inadequate monitoring subnationally of coverage with the first and second dose of MCV to guide interventions to increase coverage.

Immunization Activities

WHO and UNICEF use annual data from administrative records and surveys reported by countries to estimate MCV1 coverage administered through routine immunization services to children aged 1 year. Countries annually report the number of districts with ≥80% MCV1 coverage (*5*). During 2000–2010, estimated global MCV1 coverage increased from 72% to 85%; by 2010, three of six WHO regions had >90% estimated MCV1 coverage (Table 1). In 2010, 20,651 (61%) of 33,966 districts worldwide achieved ≥80% MCV1 coverage; 58 (30%) countries, representing 9% of the global population, reached the target in every district. Of the estimated 19.1 million children who did not receive MCV1 in 2010, 10.4 million (55%) were in five countries: India (6.7 million), Nigeria (1.7 million), Democratic Republic of the Congo (DRC) (0.8 million), Uganda (0.6 million), and Pakistan (0.6 million).

By 2010, all countries had provided a second opportunity for measles vaccination. The second dose of MCV was offered through routine services in 139 (72%) countries, including seven (15%) of 47 high-burden priority countries.* In 2010, MCV2 coverage among target-aged children, based on administrative records, was reported by 102 (73%) countries, and 67 (66%) of those countries reported ≥90% coverage. During 2000–2010, approximately 1 billion children received measles vaccination through SIAs. During 2009–2010, based on country reports, >323 million children in 55 countries were vaccinated during 63 SIAs, including 40 reaching >142 million children in 32 (68%) of 47 priority countries. Reported coverage was >90% for 46 (73%) SIAs, including 26 (72%) in priority countries (Table 2).

Surveillance Activities

The number of countries reporting annual measles surveillance data to WHO and UNICEF (*6,7*) increased from 169 (88%) in 2000 to 190 (98%) in 2010. Measles surveillance included case-based surveillance with laboratory testing to confirm cases and outbreaks. By 2010, 179 countries (83%) had implemented case-based surveillance, up from 120 (62%) in 2004,† and the number of countries supported with standardized quality-controlled testing by the WHO Measles and Rubella Laboratory Network increased to 183 (95%) from 71 (37%) in 2000.

From 2000 to 2010, annually reported measles cases decreased 60% worldwide, from 853,480 to 339,845, and measles incidence decreased 66% from 146 cases per million to 50 cases per million, with all WHO regions reporting decreases in cases and incidence (Table 1). The greatest decrease in reported measles cases was from 853,480 in 2000 to 277,968 in 2008 (Figure).

From 2008 to 2009, global reported measles cases remained stable, with increases in the African Region (AFR) from 37,012 to 83,479 and the Eastern Mediterranean Region (EMR) from 12,120 to 36,605 balanced by a decrease in the Western Pacific Region (WPR) from 147,987 to 66,609. In 2010, decreases in reported measles cases in WPR to 49,460, in EMR to 10,072,

* Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, India, Indonesia, Kenya, Lao People's Democratic Republic, Liberia, Madagascar, Mali, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Timor-Leste, Togo, Uganda, United Republic of Tanzania, Vietnam, Yemen, and Zambia.

† Data for years before 2004 were not available.

TABLE 1. Estimates of coverage with the first dose of measles-containing vaccine administered through routine immunization services among children aged 1 year, number of reported measles cases, and incidence, by World Health Organization (WHO) region, 2000 and 2010

	2000				
WHO region	% coverage with the first dose of measles-containing vaccine*	No. of countries in region reporting cases (% of total)†	No. of reported measles cases†	Measles incidence (cases per million population)§¶	% countries with incidence <5 per million
African	56	40 (87)	520,102	838	8
Americas	92	35 (100)	1,755	2	89
Eastern Mediterranean	72	18 (86)	38,592	88	17
European	91	44 (85)	37,421	50	45
South-East Asia	61	9 (90)	78,558	51	0
Western Pacific	85	23 (85)	177,052	106	30
Total	**72**	**169 (88)**	**853,480**	**146**	**38**
47 priority countries	58	43 (93)	622,061	268	0

* From WHO/United Nations Children's Fund (UNICEF) estimates of national immunization coverage. Available at http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html.

† **Sources:** World Health Organization. Measles reported cases. Geneva, Switzerland: World Health Oranization; 2011. Available at http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tsincidencemea.htm. Measles/rubella/congenital rubella syndrome surveillance data final classification, 2010.

Pan American Health Organization. Immunization newsletter 2011. Washington, DC: Pan American Health Organization; 2011. Available at http://new.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=16202&Itemid=358.

§ Population data from United Nations, Department of Economic and Social Affairs, Population Division). World population prospects: the 2010 revision [CD-ROM edition].

¶ Any countries not reporting data on measles cases for that year were removed from both the numerator and denominator.

TABLE 1. (*Continued*) Estimates of coverage with the first dose of measles-containing vaccine administered through routine immunization services among children aged 1 year, number of reported measles cases, and incidence, by World Health Organization (WHO) region, 2000 and 2010

	2010						
WHO region	% coverage with the first dose of measles-containing vaccine*	No. of countries in region reporting cases (% of total)†	No. of reported measles cases†	% decline from 2000	Measles incidence (cases per million population)§¶	% decline from 2000	% countries with incidence <5 per million
African	76	46 (100)	199,174	62	238	72	30
Americas	93	35 (100)	249	86	0.3	86	100
Eastern Mediterranean	85	20 (95)	10,072	74	17	81	40
European	95	52 (98)	30,625	18	34	32	69
South-East Asia	79	10 (91)	50,265	36	28	44	30
Western Pacific	97	27 (100)	49,460	72	28	74	70
Total	**85**	**190 (98)**	**339,845**	**60**	**50**	**66**	**60**
47 priority countries	78	47 (100)	109,361	82	39	85	21

* From WHO/United Nations Children's Fund (UNICEF) estimates of national immunization coverage. Available at http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html.

† **Sources:** World Health Organization. Measles reported cases. Geneva, Switzerland: World Health Oranization; 2011. Available at http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tsincidencemea.htm. Measles/rubella/congenital rubella syndrome surveillance data final classification, 2010.

Pan American Health Organization. Immunization newsletter 2011. Washington, DC: Pan American Health Organization; 2011. Available at http://new.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=16202&Itemid=358.

§ Population data from United Nations, Department of Economic and Social Affairs, Population Division). World population prospects: the 2010 revision [CD-ROM edition].

¶ Any countries not reporting data on measles cases for that year were removed from both the numerator and denominator.

and in the South-East Asia Region (SEAR) from 84,356 to 50,265 were offset by increases in AFR to 199,174 and in the European Region (EUR) from 7,499 to 30,625, with reported measles cases increasing globally to 339,845. Globally, the percentage of countries with reported measles incidence <5 cases per million increased from 64 (38%) of 169 reporting countries in 2000 to 122 (67%) of 183 reporting countries in 2008, then decreased to 115 (60%) of 190 reporting countries in 2010 (Table 1).

During 2009–2010, a number of countries experienced large outbreaks, including Malawi (118,712 cases), Burkina Faso (54,118), Iraq (30,328), Bulgaria (22,004), South Africa (18,356), Zambia (15,754), Zimbabwe (9,696), Vietnam (9,391), Nigeria (8,491), Namibia (7,214), the Philippines

TABLE 2. Measles supplementary immunization activities (SIAs) and delivery of other child health interventions, by country and World Health Organization (WHO) region, 2009–2010

Year	WHO region/country*	Age group targeted	Extent of SIA†	Children reached in targeted age group		Other interventions delivered					
				No.	(%)§	Oral polio vaccination	Vitamin A	Insecticide-treated bednets	Deworming medication	Tetanus toxoid vaccination	Rubella vaccination
	African										
2009	Angola*	9–59 mos	National	3,469,806	(101)	Yes	Yes		Yes	Yes	
	Botswana	9–59 mos	National	195,841	(115)		Yes				
	Burkina Faso*	6 mos–14 yrs	Subnational¶	3,833,116	(105)	Yes				Yes	
	Burundi*	6–59 mos	National	1,321,915	(95)	Yes	Yes	Yes	Yes		
	Cameroon*	9–59 mos	National	3,315,076	(96)	Yes	Yes		Yes	Yes	
	Cape Verde	9–59 mos	National	41,703	(87)	Yes					
	Chad*	9–59 mos	National	1,750,148	(89)	Yes	Yes		Yes	Yes	
	Democratic Republic of the Congo*	6–59 mos	Rollover — national**	2,412,168	(93)	Yes	Yes	Yes	Yes	Yes	
	Equatorial Guinea*	12–59 mos	National	70,500	(80)		Yes		Yes	Yes	
	Eritrea*	9–47 mos	National	281,063	(82)	Yes	Yes				
	Ethiopia*	6–59 mos	Rollover — national	1,250,685	(89)	Yes	Yes		Yes	Yes	
	Guinea*	9–59 mos	National	1,977,225	(101)	Yes	Yes	Yes	Yes	Yes	
	Guinea-Bissau*	9–59 mos	National	208,608	(101)		Yes		Yes		
	Kenya*	9–59 mos	National	5,525,400	(82)	Yes	Yes			Yes	
	Namibia	9–59 mos	National	256,006	(104)	Yes	Yes				
	Rwanda*	9–59 mos	National	1,350,125	(101)	Yes	Yes	Yes	Yes		
	Sierra Leone*	9–59 mos	National	829,842	(101)	Yes	Yes	Yes	Yes		
	South Africa	Varied	3 subnational SIAs	2,564,777	(86)		Yes		Yes		
	Swaziland	9-47 mos	National	87,592	(96)		Yes		Yes		
	Uganda*	9-47 mos	National	4,893,634	(104)	Yes	Yes	Yes	Yes	Yes	
	Zimbabwe	9-59 mos	National	1,408,589	(92)	Yes	Yes				
2010	Comoros	6-47 mos	National	62,727	(84)		Yes		Yes		
	Congo*	9-59 mos	National	575,940	(82)	Yes	Yes	Yes	Yes		
	Democratic Republic of the Congo*	6–59 mos	Rollover — national	1,259,363	(103)	Yes	Yes	Yes	Yes	Yes	
	Ethiopia*	Varied	Rollover — national	9,133,332	(105)	Yes	Yes		Yes	Yes	
	Ghana*	9–59 mos	National	4,002,842	(93)	Yes	Yes			Yes	
	Lesotho	6 mos–15 yrs	National	558,335	(91)		Yes		Yes		
	Madagascar*	9–47 mos	National	2,415,792	(93)		Yes		Yes		
	Malawi	9 mos–15 yrs	National	6,785,428	(107)		Yes		Yes		
	Niger*	9–47 mos	National	2,656,616	(102)	Yes	Yes		Yes		
	Senegal*	6–59 mos	National	1,941,874	(93)	Yes	Yes		Yes	Yes	
	South Africa	6 mos–15 yrs	National	14,592,721	(98)		Yes		Yes		
	Swaziland	9–59 mos	National	112,740	(90)		Yes		Yes		
	Togo*	9–47 mos	National	854,376	(97)	Yes	Yes		Yes		
	Zambia*	9–47 mos	National	1,961,316	(115)	Yes	Yes		Yes		
	Zimbabwe	6 mos–14 yrs	National	5,164,307	(97)		Yes				
	Americas										
2009	Argentina	1–4 yrs	National	2,748,107	(98)	Yes					Yes
	Paraguay	1–8 yrs	National	973,980	(99)	Yes					Yes
2010	Colombia	1–8 yrs	National	6,406,221	(94)						Yes
	Dominican Republic	1–8 yrs	National	1,530,854	(97)						Yes

See table footnotes on page 76.

(6,368), DRC (5,407), France (5,048), and Ethiopia (4,235). The outbreaks were primarily associated with low MCV1 coverage and, in Burkina Faso, DRC, Ethiopia, Nigeria, the Philippines, and Vietnam, with suboptimal or delayed SIAs. In areas with high reported coverage, outbreak investigations found that the number of susceptible persons had grown over several years among adolescents and adults who had missed vaccination and that reported national routine or SIA coverage masked subnational immunity gaps. In Bulgaria, Malawi, Zambia, and Zimbabwe, these gaps often were found in groups with limited access to health services or who were reluctant to vaccinate their children because of philosophical or religious objections.

Reported by

Robert T. Perry, MD, Alya J. Dabbagh, PhD, Marta Gacic-Dobo, Jodi L. Liu, MS, Emily A. Simons, MHS, David A. Featherstone, PhD, Peter M Strebel, MBChB, Jean-Marie Okwo-Bele, MD, Dept of Immunization, Vaccines, and Biologicals, World Health Organization, Geneva, Switzerland. Div of Viral Diseases, National Center for Immunization and Respiratory Diseases, James L. Goodson, MPH, Global Immunization Div, Center for Global Health, CDC. ***Corresponding contributor:*** *James L. Goodson, jgoodson@cdc.gov, 404-639-8170.*

TABLE 2. (*Continued*) Measles supplementary immunization activities (SIAs) and delivery of other child health interventions, by country and World Health Organization (WHO) region, 2009–2010

Year	WHO region/country*	Age group targeted	Extent of SIA†	Children reached in targeted age group		Other interventions delivered					
				No.	(%)§	Oral polio vaccination	Vitamin A	Insecticide-treated bednets	Deworming medication	Tetanus toxoid vaccination	Rubella vaccination
	Eastern Mediterranean										
2009	Afghanistan*	9–36 mos	National	3,000,777	(108)	Yes	Yes			Yes	
	Egypt	2–11 yrs	Rollover — national	17,843,885	(104)	Yes					Yes
	Iraq	6 mos–12 yrs	National	10,553,799	(92)						Yes
	Libya	12 mos–6 yrs	National	748,345	(98)	Yes					Yes
	Yemen*	9 mos–5 yrs	National	3,868,475	(95)	Yes	Yes			Yes	
2010	Iraq	9–59 mos	National	2,603,752	(93)	Yes					
	Pakistan*	9 mos–<13 yrs	Subnational	13,740,906	(96)	Yes				Yes	
	Sudan*	9–59 mos	Rollover — national	2,076,757	(95)	Yes	Yes		Yes	Yes	
	European										
2009	Tajikistan	1–14 yrs	National	2,298,700	(98)		Yes				Yes
	South-East Asia										
2009	Indonesia*	9–59 mos	Rollover — national	1,954,333	(92)	Yes				Yes	
	Timor-Leste*	9–59 mos	National	126,823	(76)		Yes			Yes	
2010	Bangladesh*	9–59 mos	National	36,171,370	(99)	Yes	Yes		Yes		
	India*	9 mos–10 yrs	Rollover — national	12,076,836	(86)	Yes					
	Indonesia*	9–59 mos	Rollover — national	3,302,459	(91)	Yes				Yes	
	Western Pacific										
2009	Kiribati	12–59 mos	National	9,865	(107)		Yes		Yes		Yes
	Papua New Guinea*	6–83 mos	Rollover — national	948,479	(86)	Yes				Yes	
	Solomon Islands	12–59 mos	National	60,025	(90)		Yes		Yes		
	Vanuatu	12–59 mos	National	29,919	(98)		Yes		Yes		
2010	China	Varied by province	National	103,400,000	(98)						
	Federated States of Micronesia	1–6 yrs	Rollover — national	6,900	(90)		Yes				Yes
	Papua New Guinea*	6 mos–2 yrs	Rollover — national	463,462	(83)	Yes	Yes		Yes		
	Tuvalu	1–5 yrs	National	1,095	(79)		Yes		Yes		Yes
	Vietnam*	1–5 yrs	National	7,034,895	(96)						
2009	**Total**			**82,209,331**							
2010	**Total**			**240,893,216**							

* Country is among the 47 high-burden priority countries: Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, India, Indonesia, Kenya, Lao People's Democratic Republic, Liberia, Madagascar, Mali, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Timor-Leste, Togo, Uganda, United Republic of Tanzania, Vietnam, Yemen, and Zambia.

† SIAs generally are carried out using two approaches. An initial, nationwide catch-up SIA targets all children aged 9 months–14 years; it has the goal of eliminating susceptibility to measles in the general population. Periodic follow-up SIAs then target all children born since the last SIA. Follow-up SIAs generally are conducted nationwide every 2–4 years and target children aged 9–59 months; their goal is to eliminate any measles susceptibility that has developed in recent birth cohorts and to protect children who did not respond to the first measles vaccination.

§ Values >100% indicate that the intervention reached more persons than the estimated target population.

¶ Subnational campaigns were in response to large measles outbreaks (Burkina Faso and South Africa) or natural disasters (Pakistan).

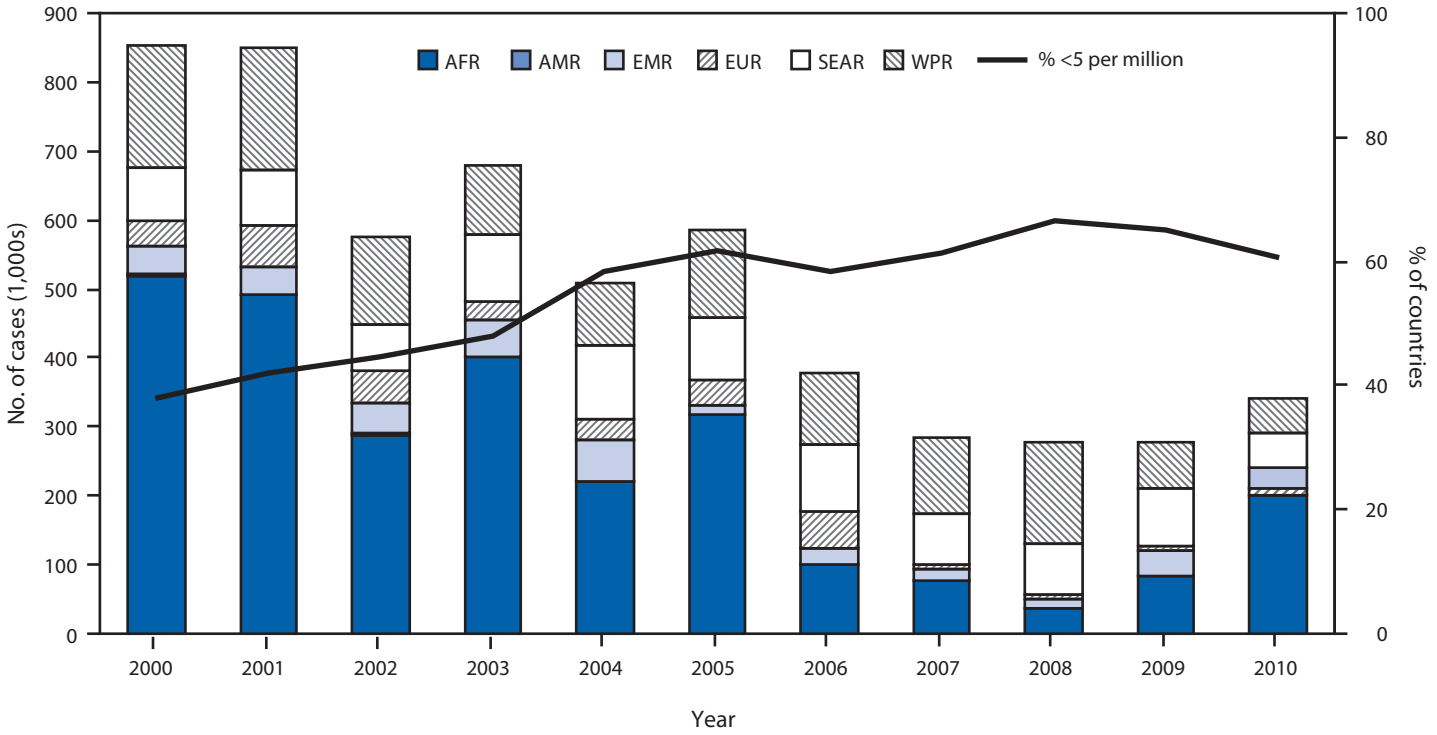
** Rollover national campaigns started the previous year or will continue into the next year.

Editorial Note

After 8 years of decline, the number of reported measles cases remained stable in 2009 but increased in 2010. Continued decreases during 2009–2010 in WPR and SEAR contrasted with large outbreaks in EMR during 2009, in EUR during 2010, and in AFR during 2009–2010. In 2010, approximately 90% of cases were reported from AFR, EUR, and SEAR, and 40% of countries did not meet the annual incidence target of <5 cases per million population.

The increase in measles cases in 2010 occurred despite a steady rise in regional and global MCV1 coverage and high reported coverage through SIAs. Measles surveillance data and outbreak investigations provided critical information to identify gaps in population immunity, underserved populations, and program weaknesses, which led to corrective actions and refinements of vaccination strategies. In Iraq, Lesotho, Malawi, the Philippines, South Africa, and Zimbabwe the target age group for planned SIAs was widened beyond ages 9–59 months to include older groups affected by the outbreaks. In Zimbabwe, to build confidence in both routine and SIA vaccination among religious groups, specialized communication strategies were developed, the opening hours of vaccination services were customized to meet the community's needs, and government authorities advocated for vaccination with church leaders. In Ethiopia, a comprehensive review of previous SIA implementation and surveillance data led to a shift from using multiyear subnational SIAs to implementation of a national SIA conducted in two phases over 6 months and

FIGURE. Number of reported measles cases and percentage of countries with estimated measles incidence <5 per million, by World Health Organization region, 2000–2010



Abbreviations: AFR = African Region, AMR = Region of the Americas, EMR = Eastern Mediterranean Region, EUR = European Region, SEAR = South-East Asia Region, WPR = Western Pacific Region.

to the development of best practices used in the 2010 SIA. Surveillance data analyses and outbreak investigations should continue to be used to complement vaccination coverage monitoring to identify gaps in vaccination programs.

Interpretation of coverage and surveillance data is complicated by some limitations. Vaccination coverage can be biased by inaccurate estimates of target populations and reporting of doses delivered. Surveillance systems do not detect all measles cases because reporting is incomplete from communities and within health systems. Comparing annual measles case totals and incidence is difficult when completeness of reporting changes from year to year.

Measles elimination goals have been set by all WHO regions except SEAR, and elimination in the Region of the Americas has been achieved and maintained since 2002. In July 2010, a global technical consultation commissioned by WHO to evaluate the feasibility of measles eradication concluded that measles can and should be eradicated (*8*). The WHO Strategic Advisory Group of Experts on Immunization endorsed this conclusion in November 2010, adding that a target date should be based on measurable progress made toward existing objectives (*9*). In 2010, the world's two most populous countries made promising advances in measles control. China held the largest SIA in the world, vaccinating approximately 103 million children, and India began implementation of a 2-dose vaccination strategy.

Building on the previous WHO and UNICEF strategy, and recognizing the burden of congenital rubella syndrome and the availability of combination vaccines, the Measles Initiative has developed the 2012–2020 Global Measles and Rubella Strategic Plan.[§] This plan aims to 1) achieve and maintain high levels of population immunity through high coverage with 2 doses of measles and rubella–containing vaccines, 2) establish effective surveillance to monitor disease and evaluate progress, 3) develop and maintain outbreak preparedness for rapid response and appropriate case management, 4) communicate and engage to build public confidence in and demand for vaccination, and 5) conduct research and development to support operations and improve vaccination and diagnostic tools.

To reverse the recent increase in global reported measles cases and to make further progress toward achieving 2015 objectives will require 1) overcoming declining political and financial commitments to measles control, 2) achieving uniform high

[§] The Measles Initiative is a broad partnership established in 2001, spearheaded by the American Red Cross, CDC, the United Nations Foundation, UNICEF, and WHO.

What is already known on this topic?

From 2000 to 2008, after implementation of recommended measles-control strategies, global routine coverage with the first dose of measles-containing vaccine (MCV1) increased from 72% to 83%, approximately 686 million children received a second opportunity for measles immunization during supplementary immunization activities (SIAs), and the estimated number of measles deaths decreased from 733,000 in 2000 to 164,000 in 2008.

What is added by this report?

Global MCV1 coverage increased to 85% in 2010, and provision of a second opportunity for immunization was expanded with approximately 1 billion children vaccinated in measles SIAs from 2000 to the end of 2010. From 2008 to 2009, the number of global reported measles cases remained stable, but in 2010, cases increased to 339,845, as a number of countries experienced large outbreaks. By the end of 2010, 40% of countries had not met the annual incidence target of <5 cases per million.

What are the implications for public health practice?

In 2010, the World Health Assembly endorsed the following measles objectives for 2015: 1) raise routine coverage with MCV1 for children aged 1 year to ≥90% nationally and ≥80% in every district or equivalent administrative unit, 2) reduce and maintain annual measles incidence at <5 cases per million, and 3) reduce measles mortality by ≥95% from the 2000 estimate. Achieving these objectives will require overcoming declining political and financial commitments, achieving high coverage with 2 doses of measles vaccine, and monitoring data to develop new interventions to increase coverage.

coverage with 2 doses of MCV through routine services or SIAs, and 3) monitoring subnational MCV1 and MCV2 coverage data to guide the development of interventions to increase coverage. Reductions in measles mortality accounted for 23% of the estimated global decline in all-cause child mortality from 1990 to 2008 (*10*). This contribution to reaching United Nations' Millennium Development Goal 4 for reducing the mortality rate in children aged <5 years by 2015[¶] is at risk unless the challenges to reaching uniform high coverage with 2 doses of MCV can be overcome.

[¶] Additional information available at http://www.un.org/millenniumgoals/childhealth.shtml.

References

1. Wolfson LJ, Strebel PM, Gacic-Dobo M, et al. Has the 2005 measles mortality reduction goal been achieved? A natural history modelling study. Lancet 2007;369:191–200.
2. World Health Organization (WHO), United Nations Children's Fund (UNICEF). WHO-UNICEF joint statement on strategies to reduce measles mortality worldwide. Geneva, Switzerland: 2001. Available at http://whqlibdoc.who.int/hq/2001/who_v&b_01.40.pdf. Accessed January 27, 2012.
3. CDC. Global measles mortality, 2000–2008. MMWR 2009;58:1321–6.
4. World Health Organization. Global eradication of measles: report by the Secretariat. Geneva, Switzerland; 2010. Available at http://apps.who.int/gb/ebwha/pdf_files/wha63/a63_18-en.pdf. Accessed January 27, 2012.
5. World Health Organization (WHO), United Nations Children's Fund (UNICEF). WHO-UNICEF estimates of MCV coverage. Geneva, Switzerland; 2011. Available at http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tswucoveragemcv.htm. Accessed January 27, 2012.
6. World Health Organization. Measles reported cases. Geneva, Switzerland; 2011. Available at http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tsincidencemea.htm. Accessed January 27, 2012.
7. Measles/rubella/congenital rubella syndrome surveillance data final classification, 2010. Immunization Newsletter 2011;33:7. Available at http://new.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=16202&itemid=358. Accessed January 27, 2012.
8. World Health Organization. World Health Organization global technical consultation to assess the feasibility of measles eradication: meeting report. Geneva, Switzerland: World Health Organization; 2010. Available at http://www.who.int/immunization/sage/1_Global_Technical_Consultation_Assess_Feasibility_Measles_Erad_8_sept_2010.pdf. Accessed January 27, 2012.
9. World Health Organization. Meeting of the Strategic Advisory Group of Experts on Immunization, November 2010: summary, conclusions and recommendations. Wkly Epidemiol Rec 2011;86:1–16.
10. van den Ent MM, Brown DW, Hoekstra EJ, Christie A, Cochi SL. Measles mortality reduction contributes substantially to reduction of all cause mortality among children less than five years of age, 1990–2008. J Infect Dis 2011;204(suppl 1):s18–23.

Notes from the Field

Outbreak of Salmonellosis Associated with Pet Turtle Exposures — United States, 2011

CDC is collaborating with the Pennsylvania State Health Department in an ongoing investigation of an outbreak of human *Salmonella* enterica serotype Paratyphi B var. L (+) tartrate + infections associated with pet turtle exposures. Turtles have long been recognized as sources of human *Salmonella* infections and are a particular risk to young children (*1*). Although the sale or distribution of small turtles (those with carapace lengths <4 inches [<10.2 cm]) has been prohibited in the United States since 1975 (with exceptions for scientific or educational purposes) (*2*), they are still available for illegal purchase through transient vendors on the street, at flea markets, and at fairs.

During August 5, 2010–September 26, 2011, a total of 132 cases of human *Salmonella* Paratyphi B var. L (+) tartrate + infection were reported in 18 states. The median age of patients was 6 years (range: <1–75 years), 66% were aged <10 years, and 63% were female. No deaths were reported. Of the 56 patients interviewed, 36 (64%) reported turtle exposure. For 15 patients who could recall the type of turtle contacted, 14 identified turtles too small to be legally traded. Five samples of turtle tank water from patient homes tested positive for the outbreak strain (four from Pennsylvania and one from South Carolina). Investigation to trace the source of these turtles is difficult because the vendors are transient. These cases illustrate that small turtles remain a source of human *Salmonella* infections, especially for young children.

Although many reptiles carry *Salmonella*, small turtles pose a greater risk to young children because they are perceived as safe pets, are small enough to be placed in the mouth, and can be handled as toys. Despite a 30-year ban on small turtles, this ongoing outbreak suggests that ban enforcement efforts, as well as public education efforts, have not been fully successful and should be examined. In 2010, in response to a 2007 lawsuit filed by the Independent Turtle Farmers of Louisiana, Inc. seeking to overturn the ban, a federal district court upheld the Food and Drug Administration's authority to enforce the ban (*3*). Regulating the sale of small turtles likely remains the most effective public health action to prevent turtle-associated salmonellosis (*4,5*).

Reported by

Andre Weltman, MD, Aaron Smee, MPH, Maria Moll, MD, Marshall Deasy, Pennsylvania Dept of Public Health. Jeshua Pringle, MPH, Ian Williams, PhD, MS, Casey Barton Behravesh, DVM, DrPH, Jennifer Wright, DVM, Div of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases; Janell Routh, MD, Allison Longenberger, PhD, EIS officers, CDC. ***Corresponding contributor:*** *Janell Routh, jrouth@cdc.gov, 404-718-1153.*

References

1. CDC. Multistate outbreak of human *Salmonella* Typhimurium infections associated with pet turtle exposure—United States, 2008. MMWR 2010;59:191–6.
2. Code of Federal Regulations. Turtles intrastate and interstate requirements, 21 C.F.R. Sect. 1240.62 (2011). Available at http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?fr=1240.62. Accessed January 24, 2012.
3. Independent Turtle Farmers of Louisiana v. United States, 703 F. Supp. 2d 604 W.D. La (March 30, 2010). Available at http://dockets.justia.com/docket/louisiana/lawdce/1:2007cv00856/103949. Accessed January 24, 2012.
4. Harris J, Neil K, Barton Behravesh C, Sotir M, Angulo F. Recent multistate outbreaks of human *Salmonella* infections acquired from turtles: a continuing public health challenge. Clin Infect Dis 2010;50:554–9.
5. Cohen ML, Potter M, Pollard R, Feldman R. Turtle-associated salmonellosis in the United States. JAMA 1980;243:1247–9.

Announcement

National Black HIV/AIDS Awareness Day — February 7, 2012

February 7, 2012, is National Black HIV/AIDS Awareness Day, an observance intended to raise awareness of and encourage action to reduce the disproportionate impact of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) on the black population in the United States. In 2009, compared with other races and ethnicities, blacks had the highest HIV prevalence (*1*) and incidence (*2*), with an estimated HIV incidence of 69.9 per 100,000 population, compared with 9.1 for whites. Two of the three goals of the National HIV/AIDS Strategy are to reduce HIV incidence and HIV-related disparities (*3*).

In 2009, among black females, heterosexual contact with a person known to have or to be at high risk for HIV infection was associated with an estimated 84% of new infections (*2*). In 2009, among black males, male-to-male sexual contact was associated with an estimated 73% of new infections. From 2006 to 2009, new infections among young black men who have sex with men increased 48% (*2*).

National Black HIV/AIDS Awareness Day is an opportunity to increase HIV prevention activities for blacks, such as HIV testing, and for persons with HIV, linkage to and retention in effective HIV medical care that reduces HIV transmission (*4*). Additional information about National Black HIV/AIDS Awareness Day is available at http://www.cdc.gov/features/blackhivaidsawareness. Additional information regarding blacks and HIV/AIDS is available at http://www.cdc.gov/hiv/topics/aa/index.htm.

References

1. CDC. Diagnoses of HIV infection and AIDS in the United States and dependent areas, 2009. HIV surveillance report, Volume 21. Atlanta, GA: US Department of Health and Human Services, CDC; 2011. Available at http://www.cdc.gov/hiv/surveillance/resources/reports/2009report/index.htm. Accessed January 25, 2012.
2. Prejean J, Song R, Hernandez A, et al. Estimated HIV incidence in the United States, 2006–2009. PLoS ONE 2011;6(8):e17502. Available at http://www.plosone.org/article/info:doi/10.1371/journal.pone.0017502. Accessed January 26, 2012.
3. White House Office of National AIDS Policy. The National HIV/AIDS Strategy for the United States. Washington, DC: White House Office of National AIDS Policy; 2010. Available at http://www.whitehouse.gov/administration/eop/onap. Accessed January 25, 2012.
4. CDC. Vital signs: HIV prevention through care and treatment—United States. MMWR 2011;60:1618–23.

Errata

Vol. 60, No. 50

In the report, "Transmission of Hepatitis C Virus Through Transplanted Organs and Tissue — Kentucky and Massachusetts, 2011," errors occurred. On page 1698, in the first full paragraph, the last sentence should read, "Liver function tests continued to be elevated, and the HCV NAT **result from a specimen received by the hospital laboratory on September 19 and reported September 20** was positive." In the second full paragraph, the clause following the semicolon should read, "**the HCV NAT result from a specimen received by the hospital laboratory on September 21 and reported September 26** was positive."

Similarly, on page 1699, the Figure should indicate that the first kidney recipient's specimen was received by the hospital laboratory on September 19, and the positive HCV NAT result was reported on September 20. The Figure also should indicate that the second kidney recipient's specimen was received by the hospital laboratory on September 21, and the positive HCV NAT result was reported on September 26.

Vol. 60, No. 48

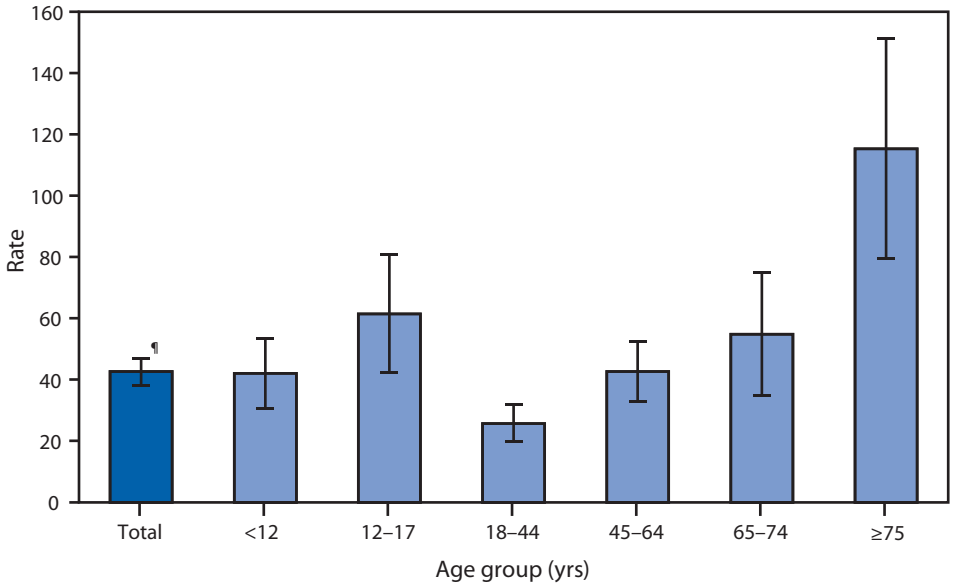
In the report, "Recommendations for Use of an Isoniazid-Rifapentine Regimen with Direct Observation to Treat Latent *Mycobacterium tuberculosis* Infection," errors occurred. On page 1653, in Box 2, the fourth bullet point should begin, **"Baseline hepatic chemistry blood tests (at least alanine aminotransferase [ALT]) for patients with specific conditions:"**

On page 1651, in the multination treatment trial described in the second full paragraph, the treating physicians had the option of prescribing oral pyridoxine 50 mg for administration with each dose of both the weekly isoniazid-rifapentine and the daily isoniazid-only regimens. Weekly pyridoxine 50 mg for prophylaxis of isoniazid-associated peripheral neuropathy should be considered with the isoniazid-rifapentine regimen, especially for persons who are malnourished or predisposed by other illnesses to peripheral neuropathy.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Rate* of Nonfatal, Medically Consulted Fall Injury Episodes,† by Age Group — National Health Interview Survey, United States, 2010§



* Per 1,000 population.
† Annualized rates of injury episodes for which a health-care professional was contacted either in person or by telephone for advice or treatment. An injury episode refers to a traumatic event in which the person experienced one or more injuries from an external cause.
§ Estimates are based on household interviews of a sample of the civilian, noninstitutionalized population.
¶ 95% confidence interval.

In 2010, the overall rate of nonfatal fall injury episodes for which a health-care professional was contacted was 43 per 1,000 population. Rates increased with age for adults aged ≥18 years. Persons aged 18–44 years had the lowest rate of medically consulted falls (26 per 1,000), and persons aged ≥75 years had the highest rate (115).

Source: Adams PF, Martinez ME, Vickerie JL, Kirzinger WK. Summary health statistics for the U.S. population: National Health Interview Survey, 2010. Vital Health Stat 2011;10(251).

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 January 28, 2012 (4th week)*

Disease	Current week	Cum 2012	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2011	2010	2009	2008	2007	
Anthrax	—	—	—	1	—	1	—	1	
Arboviral diseases§,¶:									
California serogroup virus disease	—	—	0	130	75	55	62	55	
Eastern equine encephalitis virus disease	—	—	—	4	10	4	4	4	
Powassan virus disease	—	—	—	16	8	6	2	7	
St. Louis encephalitis virus disease	—	—	—	5	10	12	13	9	
Western equine encephalitis virus disease	—	—	—	—	—	—	—	—	
Babesiosis	—	1	0	644	NN	NN	NN	NN	
Botulism, total	—	3	2	119	112	118	145	144	
foodborne	—	—	0	10	7	10	17	32	
infant	—	2	1	79	80	83	109	85	
other (wound and unspecified)	—	1	0	30	25	25	19	27	
Brucellosis	—	2	1	82	115	115	80	131	
Chancroid	—	1	1	27	24	28	25	23	
Cholera	—	—	0	31	13	10	5	7	
Cyclosporiasis§	—	2	2	145	179	141	139	93	
Diphtheria	—	—	—	—	—	—	—	—	
Haemophilus influenzae,** invasive disease (age <5 yrs):									
serotype b	—	—	1	9	23	35	30	22	
nonserotype b	—	8	5	115	200	236	244	199	
unknown serotype	2	14	4	247	223	178	163	180	NY (1), FL (1)
Hansen disease§	—	2	2	50	98	103	80	101	
Hantavirus pulmonary syndrome§	—	—	0	20	20	20	18	32	
Hemolytic uremic syndrome, postdiarrheal§	—	2	1	208	266	242	330	292	
Influenza-associated pediatric mortality§,††	—	1	3	118	61	358	90	77	
Listeriosis	3	23	10	799	821	851	759	808	MD (1), FL (1), KY (1)
Measles§§	1	10	1	216	63	71	140	43	CA (1)
Meningococcal disease, invasive¶¶:									
A, C, Y, and W-135	—	4	4	187	280	301	330	325	
serogroup B	—	—	3	116	135	174	188	167	
other serogroup	—	1	0	16	12	23	38	35	
unknown serogroup	6	29	11	380	406	482	616	550	NY (1), PA (1), OH (1), FL (1), OR (1), CA (1)
Novel influenza A virus infections***	—	—	0	8	4	43,774	2	4	
Plague	—	—	0	2	2	8	3	7	
Poliomyelitis, paralytic	—	—	—	—	—	1	—	—	
Polio virus Infection, nonparalytic§	—	—	—	—	—	—	—	—	
Psittacosis§	—	—	0	2	4	9	8	12	
Q fever, total§	—	1	1	119	131	113	120	171	
acute	—	1	1	91	106	93	106	—	
chronic	—	—	0	28	25	20	14	—	
Rabies, human	—	—	—	2	2	4	2	1	
Rubella†††	—	—	0	4	5	3	16	12	
Rubella, congenital syndrome	—	—	0	—	—	2	—	—	
SARS-CoV§	—	—	—	—	—	—	—	—	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	4	6	3	123	142	161	157	132	VT (1), OH (2), NV (1)
Syphilis, congenital (age <1 yr)§§§	—	—	8	269	377	423	431	430	
Tetanus	—	—	0	9	26	18	19	28	
Toxic-shock syndrome (staphylococcal)§	1	2	1	74	82	74	71	92	MO (1)
Trichinellosis	—	—	0	10	7	13	39	5	
Tularemia	—	—	0	140	124	93	123	137	
Typhoid fever	1	12	8	328	467	397	449	434	CA (1)
Vancomycin-intermediate *Staphylococcus aureus*§	—	—	1	70	91	78	63	37	
Vancomycin-resistant *Staphylococcus aureus*§	—	—	—	—	2	1	—	2	
Vibriosis (noncholera *Vibrio* species infections)§	3	15	3	740	846	789	588	549	VA (1), FL (2)
Viral hemorrhagic fever¶¶¶	—	—	0	—	1	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 January 28, 2012 (4th week)*

—: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts.

* Case counts for reporting year 2011 and 2012 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, and 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 2, 2011, one influenza-associated pediatric death occurring during the 2011-12 influenza season has been reported.

§§ The one measles case reported for the current week was imported.

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

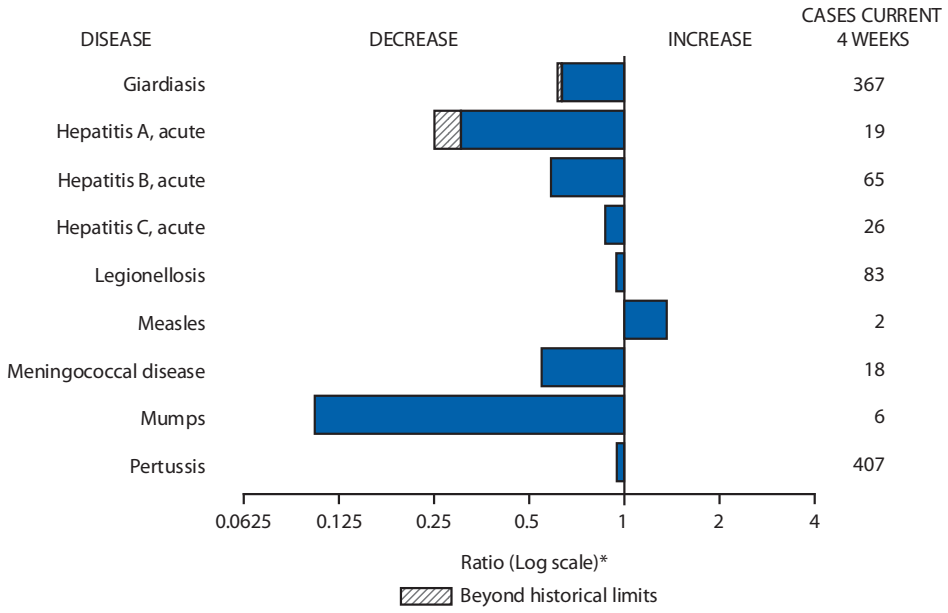
*** CDC discontinued reporting of individual confirmed and probable cases of 2009 pandemic influenza A (H1N1) virus infections on July 24, 2009. During 2009, four cases of human infection with novel influenza A viruses, different from the 2009 pandemic influenza A (H1N1) strain, were reported to CDC. The four cases of novel influenza A virus infection reported to CDC during 2010, and the eight 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 are 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 were no cases of viral hemorrhagic fever reported during the current week. See Table II for dengue hemorrhagic fever.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals January 28, 2012, 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

Jennifer Ward
Willie J. Anderson
Rosaline Dhara
Pearl C. Sharp
Deborah A. Adams
Lenee Blanton
Diana Harris Onweh
Michael S. Wodajo

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	*Chlamydia trachomatis* infection					Coccidioidomycosis					Cryptosporidiosis				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	11,755	26,745	30,793	61,475	99,619	89	388	587	542	1,873	46	131	397	250	355
New England	654	891	1,594	1,572	2,463	—	0	1	—	—	—	6	22	7	22
Connecticut	—	240	617	—	71	—	0	0	—	—	—	1	9	2	6
Maine	88	58	99	211	234	—	0	0	—	—	—	1	4	1	4
Massachusetts	566	418	860	1,135	1,596	—	0	0	—	—	—	2	8	—	9
New Hampshire	—	59	90	7	231	—	0	1	—	—	—	1	5	2	1
Rhode Island	—	80	170	219	225	—	0	0	—	—	—	0	1	—	—
Vermont	—	26	84	—	106	—	0	0	—	—	—	1	5	2	2
Mid. Atlantic	2,058	3,231	3,954	9,990	11,925	—	0	1	—	—	2	15	43	23	39
New Jersey	158	543	1,004	1,658	1,662	—	0	0	—	—	—	0	1	1	—
New York (Upstate)	680	715	1,654	1,909	2,044	—	0	0	—	—	—	4	16	4	6
New York City	271	1,067	1,315	2,583	4,385	—	0	0	—	—	—	1	6	3	5
Pennsylvania	949	1,007	1,598	3,840	3,834	—	0	1	—	—	2	9	27	15	28
E.N. Central	1,149	4,105	4,574	8,435	18,628	1	1	5	3	3	14	32	147	69	98
Illinois	32	1,132	1,365	1,378	4,999	—	0	0	—	—	—	3	26	1	11
Indiana	225	549	717	1,189	2,898	—	0	0	—	—	—	3	14	—	17
Michigan	553	922	1,229	2,697	4,434	—	0	3	—	—	—	6	14	8	22
Ohio	142	993	1,112	1,958	4,293	1	0	3	3	3	14	11	95	48	33
Wisconsin	197	463	539	1,213	2,004	—	0	0	—	—	—	8	65	12	15
W.N. Central	38	1,509	1,821	1,290	5,938	—	0	2	—	—	1	16	87	18	41
Iowa	12	211	378	726	929	—	0	0	—	—	—	6	19	6	11
Kansas	—	209	288	78	806	—	0	0	—	—	—	0	11	1	—
Minnesota	—	316	401	—	1,368	—	0	0	—	—	—	0	0	—	—
Missouri	—	534	759	—	2,061	—	0	0	—	—	1	5	63	7	10
Nebraska	—	127	215	272	312	—	0	2	—	—	—	2	12	2	15
North Dakota	—	44	64	5	146	—	0	0	—	—	—	0	12	—	—
South Dakota	26	62	89	209	316	—	0	0	—	—	—	2	13	2	5
S. Atlantic	2,995	5,407	7,461	16,422	20,007	—	0	2	—	—	16	21	57	60	69
Delaware	68	86	182	245	262	—	0	0	—	—	—	0	1	1	1
District of Columbia	190	110	216	487	420	—	0	0	—	—	—	0	1	—	1
Florida	1,071	1,516	1,700	4,985	5,717	—	0	0	—	—	6	8	17	29	31
Georgia	645	1,022	1,569	3,010	3,507	—	0	0	—	—	—	5	11	5	14
Maryland	197	479	790	631	1,383	—	0	2	—	—	3	1	7	12	4
North Carolina	—	1,000	1,688	4,011	3,336	—	0	0	—	—	—	0	44	—	—
South Carolina	—	531	1,344	—	1,930	—	0	0	—	—	2	2	6	7	11
Virginia	688	659	1,707	2,743	3,080	—	0	1	—	—	4	2	8	5	7
West Virginia	136	81	120	310	372	—	0	0	—	—	1	0	5	1	—
E.S. Central	1,171	1,900	2,804	3,617	6,072	—	0	0	—	—	—	7	25	13	10
Alabama	468	540	1,566	893	2,151	—	0	0	—	—	—	2	7	5	6
Kentucky	331	299	557	891	421	—	0	0	—	—	—	2	17	1	3
Mississippi	—	398	696	—	1,216	—	0	0	—	—	—	1	4	1	—
Tennessee	372	601	751	1,833	2,284	—	0	0	—	—	—	2	6	6	1
W.S. Central	1,919	3,353	4,327	8,554	12,778	—	0	1	—	—	5	8	44	15	10
Arkansas	—	309	440	—	1,176	—	0	0	—	—	—	0	2	1	—
Louisiana	242	371	1,071	1,098	1,555	—	0	1	—	—	1	1	9	4	—
Oklahoma	94	130	675	349	658	—	0	0	—	—	1	2	6	2	2
Texas	1,583	2,414	3,124	7,107	9,389	—	0	0	—	—	3	5	40	8	8
Mountain	368	1,775	2,395	3,713	6,058	65	306	459	438	1,425	6	10	29	21	40
Arizona	287	552	782	1,937	2,025	62	303	456	432	1,405	—	1	4	—	3
Colorado	—	420	847	891	1,284	—	0	0	—	—	—	2	11	—	10
Idaho	2	81	238	63	293	—	0	0	—	—	4	1	9	10	5
Montana	—	66	88	188	263	—	0	2	—	—	2	1	6	5	3
Nevada	46	203	380	139	800	3	2	5	6	8	—	0	2	2	1
New Mexico	—	202	482	—	739	—	1	4	—	7	—	2	9	4	12
Utah	14	133	190	407	506	—	0	4	—	3	—	1	5	—	5
Wyoming	19	33	67	88	148	—	0	2	—	2	—	0	5	—	1
Pacific	1,403	4,001	5,426	7,882	15,750	23	89	148	101	445	2	11	21	24	26
Alaska	53	110	157	394	477	—	0	0	—	—	—	0	3	—	—
California	699	3,022	4,497	5,254	12,048	23	89	148	101	444	2	6	16	21	12
Hawaii	—	114	142	—	447	—	0	0	—	—	—	0	1	—	—
Oregon	300	273	412	1,095	1,026	—	0	1	—	1	—	2	8	3	13
Washington	351	441	611	1,139	1,752	—	0	0	—	—	—	1	6	—	1
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	15	44	—	13	—	0	0	—	—	—	0	0	—	—
Puerto Rico	239	99	349	290	460	—	0	0	—	—	N	0	0	N	N
U.S. Virgin Islands	—	16	27	—	54	—	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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Dengue Virus Infection									
	Dengue Fever†					Dengue Hemorrhagic Fever§				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max		
United States	—	2	16	—	19	—	0	1	—	—
New England	—	0	1	—	—	—	0	0	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—
Maine	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island	—	0	0	—	—	—	0	0	—	—
Vermont	—	0	1	—	—	—	0	0	—	—
Mid. Atlantic	—	1	6	—	6	—	0	0	—	—
New Jersey	—	0	0	—	—	—	0	0	—	—
New York (Upstate)	—	0	0	—	—	—	0	0	—	—
New York City	—	0	4	—	3	—	0	0	—	—
Pennsylvania	—	0	2	—	3	—	0	0	—	—
E.N. Central	—	0	2	—	3	—	0	1	—	—
Illinois	—	0	1	—	—	—	0	1	—	—
Indiana	—	0	1	—	1	—	0	0	—	—
Michigan	—	0	1	—	—	—	0	0	—	—
Ohio	—	0	1	—	—	—	0	0	—	—
Wisconsin	—	0	1	—	2	—	0	0	—	—
W.N. Central	—	0	2	—	—	—	0	0	—	—
Iowa	—	0	1	—	—	—	0	0	—	—
Kansas	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	1	—	—	—	0	0	—	—
Missouri	—	0	1	—	—	—	0	0	—	—
Nebraska	—	0	0	—	—	—	0	0	—	—
North Dakota	—	0	1	—	—	—	0	0	—	—
South Dakota	—	0	0	—	—	—	0	0	—	—
S. Atlantic	—	1	8	—	5	—	0	1	—	—
Delaware	—	0	2	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
Florida	—	1	7	—	3	—	0	0	—	—
Georgia	—	0	1	—	—	—	0	0	—	—
Maryland	—	0	2	—	—	—	0	0	—	—
North Carolina	—	0	1	—	1	—	0	0	—	—
South Carolina	—	0	1	—	—	—	0	0	—	—
Virginia	—	0	1	—	1	—	0	1	—	—
West Virginia	—	0	0	—	—	—	0	0	—	—
E.S. Central	—	0	3	—	—	—	0	0	—	—
Alabama	—	0	1	—	—	—	0	0	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	0	—	—	—	0	0	—	—
Tennessee	—	0	2	—	—	—	0	0	—	—
W.S. Central	—	0	2	—	—	—	0	0	—	—
Arkansas	—	0	0	—	—	—	0	0	—	—
Louisiana	—	0	1	—	—	—	0	0	—	—
Oklahoma	—	0	0	—	—	—	0	0	—	—
Texas	—	0	1	—	—	—	0	0	—	—
Mountain	—	0	1	—	1	—	0	0	—	—
Arizona	—	0	1	—	1	—	0	0	—	—
Colorado	—	0	0	—	—	—	0	0	—	—
Idaho	—	0	0	—	—	—	0	0	—	—
Montana	—	0	0	—	—	—	0	0	—	—
Nevada	—	0	1	—	—	—	0	0	—	—
New Mexico	—	0	1	—	—	—	0	0	—	—
Utah	—	0	1	—	—	—	0	0	—	—
Wyoming	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	4	—	4	—	0	0	—	—
Alaska	—	0	0	—	—	—	0	0	—	—
California	—	0	2	—	3	—	0	0	—	—
Hawaii	—	0	4	—	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—
Washington	—	0	1	—	1	—	0	0	—	—
Territories										
American Samoa	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	16	83	—	89	—	0	3	—	1
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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† 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.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Ehrlichiosis/Anaplasmosis†														
	Ehrlichia chaffeensis					*Anaplasma phagocytophilum*					Undetermined				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	—	9	93	2	8	—	16	57	4	7	—	2	9	2	1
New England	—	0	1	—	—	—	3	28	1	3	—	0	1	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Maine	—	0	1	—	—	—	0	3	1	1	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	1	18	—	—	—	0	0	—	—
New Hampshire	—	0	1	—	—	—	0	4	—	—	—	0	1	—	—
Rhode Island	—	0	1	—	—	—	0	15	—	2	—	0	1	—	—
Vermont	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
Mid. Atlantic	—	1	5	—	1	—	6	33	2	2	—	0	2	—	—
New Jersey	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
New York (Upstate)	—	0	4	—	—	—	3	33	1	1	—	0	2	—	—
New York City	—	0	2	—	1	—	1	5	1	1	—	0	0	—	—
Pennsylvania	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
E.N. Central	—	0	5	—	1	—	0	2	—	—	—	0	6	—	1
Illinois	—	0	4	—	—	—	0	2	—	—	—	0	1	—	—
Indiana	—	0	0	—	—	—	0	0	—	—	—	0	4	—	1
Michigan	—	0	2	—	—	—	0	0	—	—	—	0	2	—	—
Ohio	—	0	1	—	1	—	0	1	—	—	—	0	1	—	—
Wisconsin	—	0	0	—	—	—	0	1	—	—	—	0	1	—	—
W.N. Central	—	1	19	1	—	—	0	8	—	—	—	0	7	—	—
Iowa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Kansas	—	0	2	—	—	—	0	1	—	—	—	0	1	—	—
Minnesota	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
Missouri	—	1	19	1	—	—	0	7	—	—	—	0	7	—	—
Nebraska	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
North Dakota	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
South Dakota	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
S. Atlantic	—	3	33	1	6	—	1	8	1	2	—	0	2	2	—
Delaware	—	0	2	—	1	—	0	1	—	—	—	0	0	—	—
District of Columbia	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Florida	—	0	3	—	1	—	0	3	—	—	—	0	0	—	—
Georgia	—	0	3	1	1	—	0	2	1	—	—	0	1	1	—
Maryland	—	0	3	—	1	—	0	2	—	—	—	0	1	1	—
North Carolina	—	0	17	—	2	—	0	6	—	2	—	0	0	—	—
South Carolina	—	0	1	—	—	—	0	0	—	—	—	0	1	—	—
Virginia	—	1	13	—	—	—	0	3	—	—	—	0	1	—	—
West Virginia	—	0	1	—	—	—	0	0	—	—	—	0	1	—	—
E.S. Central	—	1	8	—	—	—	0	2	—	—	—	0	3	—	—
Alabama	—	0	2	—	—	—	0	1	—	—	N	0	0	N	N
Kentucky	—	0	3	—	—	—	0	0	—	—	—	0	0	—	—
Mississippi	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
Tennessee	—	0	5	—	—	—	0	1	—	—	—	0	3	—	—
W.S. Central	—	0	30	—	—	—	0	3	—	—	—	0	0	—	—
Arkansas	—	0	13	—	—	—	0	3	—	—	—	0	0	—	—
Louisiana	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	25	—	—	—	0	1	—	—	—	0	0	—	—
Texas	—	0	1	—	—	—	0	1	—	—	—	0	0	—	—
Mountain	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
Arizona	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
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	1	—	—
Wyoming	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	0	—	—	—	0	1	—	—	—	0	2	—	—
Alaska	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
California	—	0	0	—	—	—	0	0	—	—	—	0	2	—	—
Hawaii	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Oregon	—	0	0	—	—	—	0	1	—	—	—	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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Cumulative total *E. ewingii* cases reported for year 2011 = 14, and 0 case reports for 2012.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Giardiasis					Gonorrhea					*Haemophilus influenzae*, invasive† All ages, all serotypes				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	99	278	450	566	930	2,808	5,982	6,724	15,337	23,586	20	64	96	196	297
New England	4	27	64	17	92	64	108	178	189	281	—	4	9	6	19
Connecticut	—	4	10	4	15	—	45	101	—	94	—	1	4	3	5
Maine	3	3	10	6	6	10	5	18	27	9	—	0	2	2	4
Massachusetts	—	12	29	—	55	52	46	80	130	167	—	2	4	—	8
New Hampshire	1	2	8	3	6	2	2	7	2	6	—	0	2	1	1
Rhode Island	—	0	10	2	5	—	7	35	30	3	—	0	2	—	—
Vermont	—	3	19	2	5	—	0	6	—	2	—	0	2	—	1
Mid. Atlantic	10	54	90	77	171	507	744	916	2,493	2,733	4	15	28	60	57
New Jersey	—	0	0	—	—	47	150	232	478	515	—	2	6	—	11
New York (Upstate)	—	22	50	22	39	131	115	301	351	314	3	3	14	11	8
New York City	3	16	29	30	69	77	241	315	606	952	—	4	10	17	8
Pennsylvania	7	15	30	25	63	252	263	492	1,058	952	1	5	14	32	30
E.N. Central	16	47	84	103	186	336	1,047	1,264	2,331	5,111	2	11	22	23	52
Illinois	—	10	19	1	37	15	289	386	359	1,284	—	3	11	1	11
Indiana	—	6	13	2	22	60	131	169	315	817	—	2	6	1	7
Michigan	2	10	21	26	41	161	236	371	789	1,276	—	1	4	3	8
Ohio	13	16	31	54	55	47	310	398	581	1,351	2	4	7	17	17
Wisconsin	1	8	19	20	31	53	89	118	287	383	—	1	4	1	9
W.N. Central	15	20	52	64	80	2	312	378	256	1,145	—	2	10	4	10
Iowa	3	4	15	20	22	1	36	94	153	152	—	0	1	—	—
Kansas	—	2	9	2	8	—	42	65	22	158	—	0	2	1	—
Minnesota	—	0	0	—	—	—	44	61	—	146	—	0	0	—	—
Missouri	7	8	23	25	28	—	150	204	—	554	—	1	5	1	6
Nebraska	5	3	11	15	14	—	28	52	63	71	—	0	2	2	4
North Dakota	—	0	12	—	—	—	4	9	—	20	—	0	6	—	—
South Dakota	—	1	8	2	8	1	11	20	18	44	—	0	1	—	—
S. Atlantic	32	53	103	149	161	742	1,491	1,949	4,507	5,546	10	14	31	58	70
Delaware	—	0	3	—	1	12	15	35	50	65	—	0	2	—	—
District of Columbia	—	1	5	—	3	71	38	105	202	158	—	0	1	—	—
Florida	15	23	69	61	103	267	376	474	1,300	1,538	4	4	12	15	26
Georgia	7	10	51	51	20	198	311	461	913	1,119	2	2	6	10	16
Maryland	4	7	14	20	13	55	118	176	194	377	3	2	6	11	6
North Carolina	N	0	0	N	N	—	334	548	1,208	1,131	1	1	7	6	4
South Carolina	3	2	8	10	6	—	156	421	—	580	—	1	5	9	4
Virginia	3	5	12	7	15	130	121	353	601	496	—	2	8	4	14
West Virginia	—	0	8	—	—	9	14	29	39	82	—	0	5	3	—
E.S. Central	1	3	9	8	7	375	516	789	1,016	1,735	1	3	12	12	20
Alabama	1	3	9	8	7	164	165	408	272	707	—	1	3	—	7
Kentucky	N	0	0	N	N	84	76	151	247	102	—	1	4	4	3
Mississippi	N	0	0	N	N	—	103	191	—	345	1	0	3	3	2
Tennessee	N	0	0	N	N	127	146	222	497	581	—	2	8	5	8
W.S. Central	4	5	15	17	15	484	878	1,176	2,301	3,432	2	2	10	11	17
Arkansas	4	3	8	7	3	—	87	138	—	363	1	0	3	2	1
Louisiana	—	2	10	10	12	75	128	255	311	434	1	1	4	4	8
Oklahoma	—	0	0	—	—	25	33	196	87	237	—	1	9	5	8
Texas	N	0	0	N	N	384	590	834	1,903	2,398	—	0	1	—	—
Mountain	4	22	41	26	77	45	202	324	494	818	1	5	10	12	31
Arizona	2	2	6	4	7	41	87	130	365	298	1	1	6	5	12
Colorado	—	7	23	10	22	—	39	89	95	189	—	1	4	—	9
Idaho	1	3	9	4	16	1	3	13	3	10	—	0	2	—	2
Montana	—	2	5	2	2	—	1	4	2	9	—	0	1	1	1
Nevada	1	1	7	4	4	1	38	103	14	154	—	0	2	2	2
New Mexico	—	1	6	1	8	—	34	73	—	136	—	1	3	3	5
Utah	—	2	9	1	17	2	5	10	13	16	—	0	3	1	—
Wyoming	—	0	5	—	1	—	0	3	2	6	—	0	1	—	—
Pacific	13	47	126	105	141	253	630	756	1,750	2,785	—	3	9	10	21
Alaska	—	2	7	4	6	7	19	31	53	82	—	0	3	—	3
California	11	33	51	85	100	184	519	609	1,470	2,316	—	1	5	3	6
Hawaii	1	0	3	1	—	—	13	24	—	55	—	0	3	2	3
Oregon	1	6	20	14	30	17	26	60	76	105	—	1	6	5	9
Washington	—	6	95	1	5	45	50	79	151	227	—	0	1	—	—
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	5	—	—	—	0	0	—	—
Puerto Rico	—	0	4	—	4	8	6	14	10	21	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	2	10	—	14	—	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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Data for *H. influenzae* (age <5 yrs for serotype b, nonserotype b, and unknown serotype) are available in Table I.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Hepatitis (viral, acute), by type														
	A					B					C				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	7	21	39	34	94	17	47	96	114	193	5	19	37	43	68
New England	—	1	5	1	6	—	1	8	—	8	—	1	5	—	6
Connecticut	—	0	3	1	2	—	0	4	—	—	—	0	5	—	6
Maine	—	0	2	—	—	—	0	2	—	—	—	0	3	—	—
Massachusetts	—	0	3	—	2	—	0	6	—	7	—	0	2	—	—
New Hampshire	—	0	0	—	—	—	0	1	—	1	N	0	0	N	N
Rhode Island	—	0	1	—	1	U	0	0	U	U	U	0	0	U	U
Vermont	—	0	2	—	1	—	0	0	—	—	—	0	1	—	—
Mid. Atlantic	2	3	7	4	16	1	5	8	7	17	1	1	5	5	5
New Jersey	—	0	0	—	—	—	0	1	2	—	—	0	1	1	—
New York (Upstate)	2	1	4	2	2	1	1	4	1	5	—	1	4	—	4
New York City	—	1	4	—	8	—	1	5	2	4	—	0	1	—	—
Pennsylvania	—	1	4	2	6	—	2	4	2	8	1	1	3	4	1
E.N. Central	—	4	8	3	20	1	6	37	11	43	—	2	8	1	18
Illinois	—	1	4	—	4	—	1	6	—	7	—	0	2	—	1
Indiana	—	0	3	—	4	—	1	4	2	4	—	0	5	—	12
Michigan	—	1	6	3	4	—	1	6	3	10	—	1	4	1	4
Ohio	—	1	3	—	6	1	1	30	6	19	—	0	1	—	—
Wisconsin	—	0	1	—	2	—	0	3	—	3	—	0	1	—	1
W.N. Central	—	1	7	1	4	—	2	9	4	14	—	0	4	1	—
Iowa	—	0	1	—	1	—	0	1	—	—	—	0	0	—	—
Kansas	—	0	1	—	—	—	0	2	—	3	—	0	1	1	—
Minnesota	—	0	7	—	—	—	0	7	—	—	—	0	2	—	—
Missouri	—	0	1	1	1	—	1	5	3	7	—	0	0	—	—
Nebraska	—	0	1	—	—	—	0	2	1	3	—	0	1	—	—
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	—	2	—	0	0	—	1	—	0	0	—	—
S. Atlantic	2	4	11	5	17	8	12	57	36	41	2	5	13	15	14
Delaware	—	0	1	—	1	—	0	2	—	—	U	0	0	U	U
District of Columbia	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Florida	1	1	8	3	4	2	4	7	11	17	2	1	3	4	5
Georgia	—	1	5	—	5	1	2	7	5	7	—	1	3	—	3
Maryland	—	0	4	—	3	3	1	4	10	4	—	0	3	1	2
North Carolina	1	0	3	1	1	1	2	9	4	5	—	1	7	3	2
South Carolina	—	0	2	—	1	1	1	3	1	4	—	0	1	—	—
Virginia	—	0	3	—	2	—	1	4	5	4	—	0	3	—	2
West Virginia	—	0	2	1	—	—	0	43	—	—	—	0	7	7	—
E.S. Central	—	1	6	1	2	3	10	15	36	27	2	5	10	15	8
Alabama	—	0	2	—	—	—	2	6	6	4	—	0	3	1	—
Kentucky	—	0	2	—	2	1	3	8	14	11	2	2	8	9	5
Mississippi	—	0	1	—	—	—	1	4	2	2	U	0	0	U	U
Tennessee	—	0	5	1	—	2	4	8	14	10	—	1	5	5	3
W.S. Central	3	3	7	8	3	1	6	14	8	14	—	1	5	2	9
Arkansas	—	0	2	—	—	—	1	4	—	2	—	0	0	—	—
Louisiana	—	0	2	—	1	—	0	4	—	7	—	0	1	—	4
Oklahoma	—	0	2	—	—	1	1	9	1	1	—	1	4	—	3
Texas	3	3	7	8	2	—	3	9	7	4	—	0	3	2	2
Mountain	—	1	5	6	8	3	1	4	9	12	—	1	5	2	4
Arizona	—	0	2	2	3	—	0	3	2	1	U	0	0	U	U
Colorado	—	0	2	2	3	—	0	2	—	2	—	0	2	—	2
Idaho	—	0	1	1	—	—	0	1	—	1	—	0	2	—	2
Montana	—	0	1	—	1	—	0	0	—	—	—	0	1	—	—
Nevada	—	0	3	1	—	3	0	3	7	6	—	0	2	2	—
New Mexico	—	0	1	—	1	—	0	2	—	—	—	0	2	—	—
Utah	—	0	1	—	—	—	0	1	—	2	—	0	2	—	—
Wyoming	—	0	1	—	—	—	0	0	—	—	—	0	1	—	—
Pacific	—	3	11	5	18	—	3	8	3	17	—	1	8	2	4
Alaska	—	0	1	—	—	—	0	1	—	—	U	0	0	U	U
California	—	3	7	5	15	—	2	7	1	14	—	1	4	2	1
Hawaii	—	0	2	—	1	—	0	1	1	1	U	0	0	U	U
Oregon	—	0	2	—	1	—	0	4	1	2	—	0	2	—	2
Washington	—	0	4	—	1	—	0	3	—	—	—	0	4	—	1
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	5	—	1	—	2	8	—	2	—	0	3	—	1
Puerto Rico	—	0	1	—	—	—	0	2	—	—	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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Legionellosis					Lyme disease					Malaria				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	19	67	166	113	133	119	391	1,578	736	648	12	24	48	58	104
New England	—	4	40	3	11	1	81	503	25	202	—	1	7	1	7
Connecticut	—	1	11	2	1	—	36	234	—	88	—	0	2	—	1
Maine	—	0	3	—	—	—	13	67	10	8	—	0	2	—	—
Massachusetts	—	3	24	—	7	—	18	106	—	69	—	0	6	—	5
New Hampshire	—	0	3	—	1	—	10	90	3	29	—	0	1	—	—
Rhode Island	—	0	9	1	1	—	1	31	—	1	—	0	2	—	—
Vermont	—	0	2	—	1	1	6	70	12	7	—	0	1	1	1
Mid. Atlantic	2	16	76	20	33	95	193	751	596	268	—	6	13	6	29
New Jersey	—	0	0	—	—	58	1	145	390	—	—	0	0	—	—
New York (Upstate)	—	6	27	8	9	14	56	212	28	21	—	1	4	1	3
New York City	1	3	14	4	12	—	1	14	—	5	—	4	11	4	21
Pennsylvania	1	5	41	8	12	23	109	526	178	242	—	1	5	1	5
E.N. Central	2	13	51	24	27	2	18	259	9	52	—	3	10	4	12
Illinois	—	2	11	—	3	—	1	20	—	3	—	1	5	—	5
Indiana	—	2	8	3	4	—	1	12	—	—	—	0	2	—	1
Michigan	—	2	15	—	7	1	1	12	5	—	—	0	4	1	—
Ohio	2	7	34	21	13	1	1	6	4	2	—	1	4	2	5
Wisconsin	—	0	1	—	—	—	15	218	—	47	—	0	2	1	1
W.N. Central	1	1	8	3	2	—	1	16	2	2	1	1	5	3	1
Iowa	—	0	2	—	—	—	0	13	1	1	—	0	3	1	—
Kansas	—	0	2	—	—	—	0	2	—	—	—	0	2	—	—
Minnesota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Missouri	1	1	5	3	2	—	0	2	—	1	1	0	2	2	1
Nebraska	—	0	2	—	—	—	0	2	1	—	—	0	1	—	—
North Dakota	—	0	1	—	—	—	0	9	—	—	—	0	0	—	—
South Dakota	—	0	1	—	—	—	0	2	—	—	—	0	1	—	—
S. Atlantic	11	11	30	38	16	21	61	181	90	119	5	8	25	28	34
Delaware	—	0	4	2	—	2	13	48	18	37	—	0	3	—	—
District of Columbia	—	0	3	—	—	—	0	3	1	2	—	0	1	—	2
Florida	8	4	13	21	7	6	3	8	14	3	2	2	6	13	7
Georgia	—	1	4	3	2	—	0	5	3	1	—	1	6	3	6
Maryland	1	2	15	3	3	6	21	116	29	42	2	2	15	7	7
North Carolina	—	1	7	4	1	—	0	12	—	5	—	0	7	—	4
South Carolina	—	0	5	1	—	1	0	6	1	1	1	0	1	2	—
Virginia	2	1	7	4	3	6	15	75	18	28	—	1	8	3	8
West Virginia	—	0	5	—	—	—	0	13	6	—	—	0	1	—	—
E.S. Central	—	2	11	2	5	—	1	5	1	—	—	1	4	—	2
Alabama	—	0	2	—	1	—	0	2	—	—	—	0	3	—	1
Kentucky	—	1	4	—	1	—	0	1	1	—	—	0	2	—	—
Mississippi	—	0	3	—	1	—	0	1	—	—	—	0	1	—	—
Tennessee	—	1	8	2	2	—	0	4	—	—	—	0	3	—	1
W.S. Central	—	3	8	2	4	—	1	3	—	1	3	1	4	3	2
Arkansas	—	0	2	—	—	—	0	0	—	—	—	0	1	—	—
Louisiana	—	0	3	—	1	—	0	1	—	—	—	0	1	—	—
Oklahoma	—	0	3	—	—	—	0	0	—	—	3	0	1	3	—
Texas	—	2	7	2	3	—	1	3	—	1	—	0	4	—	2
Mountain	—	2	9	5	5	—	0	5	2	1	—	1	5	1	8
Arizona	—	1	4	2	2	—	0	4	1	—	—	0	4	—	2
Colorado	—	0	4	—	2	—	0	1	—	—	—	0	3	—	3
Idaho	—	0	1	1	—	—	0	2	1	—	—	0	1	—	—
Montana	—	0	1	—	—	—	0	3	—	—	—	0	1	—	—
Nevada	—	0	2	1	1	—	0	1	—	—	—	0	2	1	2
New Mexico	—	0	2	—	—	—	0	2	—	1	—	0	1	—	1
Utah	—	0	2	1	—	—	0	1	—	—	—	0	1	—	—
Wyoming	—	0	2	—	—	—	0	1	—	—	—	0	0	—	—
Pacific	3	5	12	16	30	—	2	8	11	3	3	3	11	12	9
Alaska	—	0	0	—	—	—	0	3	—	—	—	0	2	1	—
California	3	5	11	12	29	—	1	7	11	2	3	2	8	10	5
Hawaii	—	0	2	—	—	N	0	0	N	N	—	0	1	—	—
Oregon	—	0	3	4	1	—	0	2	—	1	—	0	4	1	3
Washington	—	0	3	—	—	—	0	6	—	—	—	0	2	—	1
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	—	0	1	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	N	0	0	N	N	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Meningococcal disease, invasive† All serogroups					Mumps					Pertussis				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	6	12	30	34	62	1	7	19	9	23	130	309	525	710	1,389
New England	—	0	3	—	2	—	0	2	—	1	8	14	32	38	34
Connecticut	—	0	1	—	1	—	0	0	—	—	—	1	5	2	6
Maine	—	0	1	—	—	—	0	2	—	—	4	3	19	13	4
Massachusetts	—	0	2	—	1	—	0	1	—	1	—	4	10	—	16
New Hampshire	—	0	1	—	—	—	0	0	—	—	—	2	13	2	4
Rhode Island	—	0	1	—	—	—	0	2	—	—	—	0	4	1	4
Vermont	—	0	3	—	—	—	0	1	—	—	4	1	16	20	—
Mid. Atlantic	2	1	4	5	8	—	1	7	—	3	58	38	148	198	128
New Jersey	—	0	0	—	—	—	0	2	—	3	—	3	10	—	10
New York (Upstate)	1	0	4	1	—	—	0	3	—	—	43	13	123	107	38
New York City	—	0	2	2	6	—	0	6	—	—	—	3	42	11	—
Pennsylvania	1	0	2	2	2	—	0	1	—	—	15	13	38	80	80
E.N. Central	1	2	6	4	9	—	2	12	1	9	22	66	210	158	354
Illinois	—	0	3	—	1	—	1	10	—	3	—	18	121	18	70
Indiana	—	0	2	—	2	—	0	2	—	—	—	4	21	1	32
Michigan	—	0	1	—	2	—	0	2	—	1	1	10	38	9	84
Ohio	1	0	2	4	2	—	0	2	1	5	19	13	37	62	125
Wisconsin	—	0	1	—	2	—	0	1	—	—	2	12	53	68	43
W.N. Central	—	1	3	2	6	—	0	3	1	3	8	21	119	64	77
Iowa	—	0	1	—	1	—	0	2	—	—	—	4	9	4	20
Kansas	—	0	1	—	1	—	0	1	—	1	1	2	10	5	6
Minnesota	—	0	0	—	—	—	0	1	—	—	—	0	110	—	—
Missouri	—	0	3	2	2	—	0	3	1	1	7	7	27	54	41
Nebraska	—	0	2	—	2	—	0	1	—	1	—	1	5	1	9
North Dakota	—	0	1	—	—	—	0	3	—	—	—	0	10	—	—
South Dakota	—	0	1	—	—	—	0	0	—	—	—	0	7	—	1
S. Atlantic	1	2	8	5	5	—	1	4	2	—	15	26	67	71	145
Delaware	—	0	1	—	—	—	0	0	—	—	—	0	5	3	3
District of Columbia	—	0	1	—	—	—	0	1	—	—	—	0	2	1	1
Florida	1	1	5	3	2	—	0	2	1	—	8	6	17	26	20
Georgia	—	0	1	—	—	—	0	2	—	—	—	3	8	9	23
Maryland	—	0	2	2	—	—	0	1	1	—	4	2	8	12	14
North Carolina	—	0	3	—	2	—	0	2	—	—	—	3	35	4	24
South Carolina	—	0	1	—	1	—	0	1	—	—	1	2	9	1	22
Virginia	—	0	2	—	—	—	0	4	—	—	1	6	25	10	38
West Virginia	—	0	3	—	—	—	0	1	—	—	1	0	15	5	—
E.S. Central	—	0	3	—	4	—	0	1	—	2	10	9	15	43	57
Alabama	—	0	2	—	3	—	0	1	—	1	—	2	11	1	10
Kentucky	—	0	2	—	—	—	0	0	—	—	4	3	9	25	30
Mississippi	—	0	1	—	1	—	0	1	—	1	—	0	4	2	3
Tennessee	—	0	2	—	—	—	0	1	—	—	6	2	7	15	14
W.S. Central	—	1	5	1	4	1	1	12	1	3	4	19	66	16	33
Arkansas	—	0	2	—	1	—	0	2	—	—	—	1	5	—	2
Louisiana	—	0	2	1	2	—	0	0	—	—	—	0	3	—	4
Oklahoma	—	0	2	—	—	—	0	2	—	—	—	0	11	—	—
Texas	—	0	2	—	1	1	1	12	1	3	4	18	64	16	27
Mountain	—	1	4	—	5	—	0	2	1	1	3	39	82	98	185
Arizona	—	0	1	—	2	—	0	0	—	—	1	12	30	56	73
Colorado	—	0	1	—	1	—	0	1	1	—	—	7	25	17	45
Idaho	—	0	1	—	1	—	0	2	—	—	1	3	12	10	11
Montana	—	0	2	—	—	—	0	0	—	—	—	1	32	8	11
Nevada	—	0	1	—	—	—	0	0	—	—	1	0	4	4	3
New Mexico	—	0	1	—	—	—	0	1	—	1	—	3	24	3	4
Utah	—	0	2	—	1	—	0	0	—	—	—	6	15	—	37
Wyoming	—	0	0	—	—	—	0	1	—	—	—	0	1	—	1
Pacific	2	3	10	17	19	—	0	11	3	1	2	60	127	24	376
Alaska	—	0	1	—	—	—	0	1	—	—	1	0	4	5	8
California	1	2	9	14	14	—	0	11	3	—	1	36	78	9	347
Hawaii	—	0	1	—	1	—	0	1	—	—	—	1	9	7	3
Oregon	1	0	3	3	3	—	0	1	—	1	—	5	23	3	18
Washington	—	0	2	—	1	—	0	1	—	—	—	11	88	—	—
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	1	3	—	—	—	2	14	—	—
Puerto Rico	—	0	0	—	—	—	0	1	—	—	—	0	1	—	1
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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Data for meningococcal disease, invasive caused by serogroups A, C, Y, and W-135; serogroup B; other serogroup; and unknown serogroup are available in Table I.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Rabies, animal					Salmonellosis					Shiga toxin-producing *E. coli* (STEC)†				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	16	57	99	82	235	221	867	1,855	1,257	1,916	14	86	206	112	153
New England	—	5	16	19	8	—	36	107	23	87	—	3	13	1	6
Connecticut	—	2	10	5	2	—	8	30	8	26	—	1	4	1	2
Maine	—	1	6	9	1	—	2	8	5	4	—	0	3	—	—
Massachusetts	—	0	0	—	—	—	19	44	—	43	—	1	9	—	2
New Hampshire	—	0	3	2	1	—	3	8	4	10	—	0	3	—	2
Rhode Island	—	0	6	2	—	—	1	62	—	—	—	0	2	—	—
Vermont	—	0	2	1	4	—	1	8	6	4	—	0	3	—	—
Mid. Atlantic	2	16	35	11	52	7	72	172	102	165	1	9	28	15	17
New Jersey	—	0	0	—	—	—	0	3	—	—	—	0	0	—	—
New York (Upstate)	2	7	20	11	19	—	26	67	18	30	—	3	13	1	8
New York City	—	0	3	—	—	1	19	42	35	54	—	2	6	5	1
Pennsylvania	—	8	21	—	33	6	31	113	49	81	1	3	16	9	8
E.N. Central	1	2	17	2	4	10	88	184	93	243	2	15	51	16	39
Illinois	—	0	6	—	3	—	27	80	12	95	—	4	14	1	8
Indiana	—	0	7	—	—	—	8	27	4	22	—	1	10	—	8
Michigan	—	1	6	1	1	2	14	42	21	42	1	3	19	11	11
Ohio	1	1	5	1	—	8	20	46	50	56	1	3	10	4	4
Wisconsin	N	0	0	N	N	—	12	46	6	28	—	3	21	—	8
W.N. Central	1	1	7	5	1	13	40	103	71	91	2	11	40	19	11
Iowa	—	0	0	—	—	1	8	19	7	23	—	2	15	2	3
Kansas	—	1	4	4	1	4	8	27	23	16	—	2	8	3	2
Minnesota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Missouri	1	0	1	1	—	7	16	46	33	40	2	5	32	9	2
Nebraska	—	0	3	—	—	1	4	13	6	7	—	1	7	2	4
North Dakota	—	0	3	—	—	—	0	15	—	—	—	0	4	—	—
South Dakota	—	0	0	—	—	—	3	10	2	5	—	1	4	3	—
S. Atlantic	7	18	53	17	158	121	271	729	534	563	5	13	28	34	33
Delaware	—	0	0	—	—	1	3	12	6	9	—	0	2	1	—
District of Columbia	—	0	0	—	—	—	1	6	—	1	—	0	1	—	1
Florida	6	0	32	8	116	81	107	203	266	222	4	3	9	14	5
Georgia	—	0	0	—	—	6	40	132	51	92	—	2	8	3	6
Maryland	—	6	13	4	3	13	18	43	51	49	1	1	3	3	5
North Carolina	—	0	0	—	—	—	30	251	73	79	—	2	11	3	6
South Carolina	N	0	0	N	N	5	26	71	40	49	—	0	4	1	—
Virginia	—	11	27	—	39	9	19	53	39	62	—	3	9	9	10
West Virginia	1	0	30	5	—	6	0	18	8	—	—	0	2	—	—
E.S. Central	1	3	11	7	8	11	64	190	107	159	3	4	18	11	11
Alabama	1	2	7	6	4	3	20	70	30	55	—	0	15	2	2
Kentucky	—	0	2	1	1	1	11	30	17	21	2	1	5	3	2
Mississippi	—	0	1	—	—	2	22	66	32	33	—	0	4	3	1
Tennessee	—	1	4	—	3	5	15	51	28	50	1	1	11	3	6
W.S. Central	3	1	21	15	—	24	125	250	72	165	—	10	45	4	5
Arkansas	—	0	10	—	—	10	13	52	22	27	—	1	6	3	1
Louisiana	—	0	0	—	—	4	14	44	28	43	—	0	1	—	—
Oklahoma	—	0	21	4	—	6	12	31	11	14	—	1	10	1	2
Texas	3	0	4	11	—	4	88	157	11	81	—	7	45	—	2
Mountain	—	1	4	5	—	13	45	93	79	168	1	11	27	8	15
Arizona	N	0	0	N	N	9	15	35	40	55	—	1	7	1	2
Colorado	—	0	0	—	—	—	9	23	11	38	—	3	9	1	7
Idaho	—	0	1	—	—	2	3	8	3	14	1	1	8	2	4
Montana	N	0	0	N	N	1	2	10	5	3	—	1	4	—	—
Nevada	—	0	2	—	—	1	3	7	4	14	—	1	7	—	1
New Mexico	—	0	3	5	—	—	5	22	5	24	—	1	3	2	1
Utah	—	0	2	—	—	—	6	15	10	19	—	1	7	2	—
Wyoming	—	0	0	—	—	—	1	9	1	1	—	0	7	—	—
Pacific	1	4	13	1	4	22	92	174	176	275	—	10	29	4	16
Alaska	1	0	2	1	2	—	1	6	7	7	—	0	1	—	—
California	—	3	12	—	—	21	73	142	148	212	—	4	14	2	11
Hawaii	—	0	0	—	—	1	6	14	8	29	—	0	2	—	—
Oregon	—	0	2	—	2	—	6	12	12	24	—	1	11	2	4
Washington	—	0	0	—	—	—	9	29	1	3	—	2	13	—	1
Territories															
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	2	—	3	—	0	0	—	—
Puerto Rico	—	0	6	—	2	—	3	12	—	12	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Includes *E. coli* O157:H7; Shiga toxin-positive, serogroup non-O157; and Shiga toxin-positive, not serogrouped.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Shigellosis					Spotted Fever Rickettsiosis (including RMSF)†									
						Confirmed					Probable				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	116	245	348	561	636	—	3	15	4	7	—	30	140	17	18
New England	—	4	21	2	13	—	0	1	—	—	—	0	1	—	—
Connecticut	—	1	4	2	2	—	0	0	—	—	—	0	0	—	—
Maine	—	0	8	—	1	—	0	0	—	—	—	0	1	—	—
Massachusetts	—	3	20	—	9	—	0	0	—	—	—	0	1	—	—
New Hampshire	—	0	1	—	—	—	0	1	—	—	—	0	1	—	—
Rhode Island	—	0	3	—	—	—	0	0	—	—	—	0	1	—	—
Vermont	—	0	1	—	1	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	1	16	54	83	37	—	0	2	1	—	—	1	6	1	2
New Jersey	—	0	23	43	—	—	0	0	—	—	—	0	0	—	—
New York (Upstate)	—	5	34	6	10	—	0	1	—	—	—	0	2	—	—
New York City	1	7	28	29	18	—	0	0	—	—	—	0	3	—	2
Pennsylvania	—	2	13	5	9	—	0	2	1	—	—	0	3	1	—
E.N. Central	19	14	40	100	62	—	0	2	1	—	—	2	10	—	2
Illinois	—	4	16	—	24	—	0	1	—	—	—	1	4	—	1
Indiana	—	0	4	—	6	—	0	1	1	—	—	0	4	—	—
Michigan	1	3	11	15	11	—	0	1	—	—	—	0	1	—	—
Ohio	18	5	27	85	21	—	0	2	—	—	—	0	2	—	1
Wisconsin	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
W.N. Central	4	5	18	24	49	—	0	4	—	—	—	4	29	2	2
Iowa	—	0	3	—	2	—	0	0	—	—	—	0	2	—	—
Kansas	1	1	5	12	12	—	0	0	—	—	—	0	0	—	—
Minnesota	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Missouri	3	3	14	11	33	—	0	3	—	—	—	4	29	2	2
Nebraska	—	0	2	1	1	—	0	3	—	—	—	0	1	—	—
North Dakota	—	0	0	—	—	—	0	1	—	—	—	0	0	—	—
South Dakota	—	0	2	—	1	—	0	1	—	—	—	0	0	—	—
S. Atlantic	28	74	134	120	206	—	1	8	—	3	—	6	57	10	6
Delaware	—	0	2	—	—	—	0	1	—	—	—	0	4	1	—
District of Columbia	—	0	5	—	3	—	0	1	—	—	—	0	1	—	—
Florida	24	50	98	90	135	—	0	1	—	1	—	0	2	3	—
Georgia	1	12	24	16	33	—	1	7	—	—	—	0	0	—	—
Maryland	2	2	7	6	5	—	0	1	—	1	—	0	2	—	—
North Carolina	—	3	19	4	18	—	0	4	—	1	—	0	49	3	4
South Carolina	—	1	54	2	6	—	0	2	—	—	—	0	2	—	1
Virginia	1	2	7	2	6	—	0	1	—	—	—	3	14	3	1
West Virginia	—	0	2	—	—	—	0	0	—	—	—	0	1	—	—
E.S. Central	30	18	51	88	41	—	0	2	—	—	—	4	25	2	2
Alabama	9	5	21	28	19	—	0	1	—	—	—	1	8	1	1
Kentucky	18	4	22	48	2	—	0	1	—	—	—	0	2	—	—
Mississippi	—	4	24	6	6	—	0	0	—	—	—	0	2	—	—
Tennessee	3	4	11	6	14	—	0	2	—	—	—	4	20	1	1
W.S. Central	23	54	119	80	83	—	0	3	—	—	—	2	51	1	—
Arkansas	2	2	7	3	3	—	0	3	—	—	—	1	51	—	—
Louisiana	—	4	21	9	14	—	0	0	—	—	—	0	2	1	—
Oklahoma	6	3	28	20	5	—	0	1	—	—	—	0	25	—	—
Texas	15	43	98	48	61	—	0	1	—	—	—	0	4	—	—
Mountain	5	14	41	23	65	—	0	3	1	4	—	1	7	—	4
Arizona	2	5	27	15	29	—	0	3	—	4	—	0	6	—	4
Colorado	—	1	8	1	12	—	0	0	—	—	—	0	1	—	—
Idaho	1	0	3	1	2	—	0	1	1	—	—	0	1	—	—
Montana	2	1	15	3	1	—	0	0	—	—	—	0	1	—	—
Nevada	—	0	4	1	5	—	0	0	—	—	—	0	1	—	—
New Mexico	—	2	7	1	12	—	0	0	—	—	—	0	0	—	—
Utah	—	1	4	1	4	—	0	0	—	—	—	0	1	—	—
Wyoming	—	0	1	—	—	—	0	0	—	—	—	0	2	—	—
Pacific	6	20	44	41	80	—	0	2	1	—	—	0	1	1	—
Alaska	—	0	2	2	—	N	0	0	N	N	N	0	0	N	N
California	6	15	41	36	71	—	0	2	1	—	—	0	1	1	—
Hawaii	—	1	3	—	5	N	0	0	N	N	N	0	0	N	N
Oregon	—	1	4	3	4	—	0	0	—	—	—	0	0	—	—
Washington	—	1	9	—	—	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	—	0	0	—	1	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	1	—	—	N	0	0	N	N	N	0	0	N	N
Puerto Rico	—	0	0	—	—	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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Illnesses with similar clinical presentation that result from Spotted fever group rickettsia infections are reported as Spotted fever rickettsioses. Rocky Mountain spotted fever (RMSF) caused by *Rickettsia rickettsii*, is the most common and well-known spotted fever.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	*Streptococcus pneumoniae*,† invasive disease										Syphilis, primary and secondary				
	All ages					Age <5									
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	161	251	464	997	1,494	11	20	41	64	85	76	263	316	441	913
New England	1	14	31	36	88	—	1	4	—	2	—	7	22	7	29
Connecticut	—	6	20	18	44	—	0	3	—	—	—	0	12	—	1
Maine	1	2	8	12	12	—	0	1	—	—	—	0	2	—	2
Massachusetts	—	0	3	—	4	—	0	2	—	2	—	5	10	6	19
New Hampshire	—	1	8	1	10	—	0	1	—	—	—	0	3	—	2
Rhode Island	—	1	6	—	14	—	0	1	—	—	—	0	7	1	5
Vermont	—	1	6	5	4	—	0	2	—	—	—	0	2	—	—
Mid. Atlantic	4	15	52	120	98	—	1	10	3	3	8	30	53	49	128
New Jersey	—	0	13	32	—	—	0	2	2	—	—	4	13	—	12
New York (Upstate)	—	2	30	49	8	—	1	10	1	3	3	4	9	10	11
New York City	4	12	24	39	90	—	0	9	—	—	—	14	24	17	77
Pennsylvania	N	0	0	N	N	N	0	0	N	N	5	7	17	22	28
E.N. Central	43	63	122	228	299	1	3	10	13	18	4	30	47	27	120
Illinois	N	0	0	N	N	—	0	0	—	—	3	11	24	16	51
Indiana	1	15	36	11	61	—	1	4	1	2	1	3	8	6	17
Michigan	4	13	26	47	64	—	0	2	2	6	—	4	12	1	19
Ohio	33	28	43	136	131	1	2	7	7	7	—	8	17	4	30
Wisconsin	5	8	23	34	43	—	0	2	3	3	—	1	5	—	3
W.N. Central	4	2	28	17	15	1	0	2	1	1	—	6	13	1	31
Iowa	N	0	0	N	N	N	0	0	N	N	—	0	3	1	—
Kansas	N	0	0	N	N	N	0	0	N	N	—	0	4	—	1
Minnesota	—	0	0	—	—	—	0	0	—	—	—	2	8	—	14
Missouri	N	0	0	N	N	—	0	0	—	—	—	2	8	—	15
Nebraska	4	2	9	17	15	1	0	2	1	1	—	0	2	—	1
North Dakota	—	0	25	—	—	—	0	1	—	—	—	0	0	—	—
South Dakota	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
S. Atlantic	53	65	143	297	500	5	5	15	19	31	24	69	100	141	192
Delaware	—	1	5	5	10	—	0	0	—	—	2	0	4	4	2
District of Columbia	—	1	5	1	5	—	0	1	1	1	7	3	8	19	10
Florida	23	21	55	115	214	3	2	8	8	13	7	23	36	55	94
Georgia	9	19	38	82	132	—	2	5	6	10	5	15	43	23	21
Maryland	6	9	29	27	72	1	1	3	1	5	1	8	20	10	19
North Carolina	N	0	0	N	N	N	0	0	N	N	—	8	21	19	18
South Carolina	6	8	22	44	67	—	0	3	—	2	—	4	11	—	13
Virginia	N	0	0	N	N	—	0	0	—	—	2	4	12	11	15
West Virginia	9	1	48	23	—	1	0	4	3	—	—	0	2	—	—
E.S. Central	15	23	45	97	131	—	2	4	7	13	3	15	30	17	39
Alabama	N	0	0	N	N	N	0	0	N	N	—	4	11	5	15
Kentucky	1	4	12	19	27	—	0	3	—	4	2	2	8	4	6
Mississippi	N	0	0	N	N	—	0	0	—	—	—	3	19	—	2
Tennessee	14	19	39	78	104	—	2	3	7	9	1	5	11	8	16
W.S. Central	32	31	118	101	145	3	3	10	11	6	18	36	50	91	119
Arkansas	4	4	14	17	26	—	0	4	2	2	—	3	10	—	11
Louisiana	1	2	11	15	27	—	0	2	2	1	1	7	25	13	8
Oklahoma	N	0	0	N	N	—	0	0	—	—	1	1	6	2	3
Texas	27	24	104	69	92	3	3	9	7	3	16	23	38	76	97
Mountain	8	26	72	94	206	—	3	8	6	11	1	12	20	6	39
Arizona	8	12	45	70	113	—	1	5	5	5	—	4	10	4	14
Colorado	—	9	23	10	45	—	0	4	—	1	—	2	6	1	8
Idaho	N	0	0	N	N	—	0	0	—	—	1	0	4	1	3
Montana	N	0	0	N	N	N	0	0	N	N	—	0	1	—	3
Nevada	N	0	0	N	N	N	0	0	N	N	—	2	9	—	8
New Mexico	—	4	12	14	27	—	0	2	1	1	—	1	4	—	2
Utah	—	1	8	—	18	—	0	3	—	4	—	0	2	—	1
Wyoming	—	0	3	—	3	—	0	0	—	—	—	0	0	—	—
Pacific	1	3	11	7	12	1	0	2	4	—	18	56	74	102	216
Alaska	1	2	11	7	12	1	0	2	4	—	—	0	2	1	—
California	N	0	0	N	N	N	0	0	N	N	12	44	62	84	187
Hawaii	—	0	1	—	—	—	0	1	—	—	—	0	3	—	—
Oregon	N	0	0	N	N	N	0	0	N	N	—	4	14	4	5
Washington	N	0	0	N	N	N	0	0	N	N	6	5	11	13	24
Territories															
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—	6	4	15	12	11
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.
* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.
† Includes drug resistant and susceptible cases of invasive *Streptococcus pneumoniae* disease among children <5 years and among all ages. Case definition: Isolation of *S. pneumoniae* from a normally sterile body site (e.g., blood or cerebrospinal fluid).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending January 28, 2012, and January 29, 2011 (4th week)*

Reporting area	Varicella (chickenpox)					West Nile virus disease†									
						Neuroinvasive					Nonneuroinvasive§				
	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011	Current week	Previous 52 weeks		Cum 2012	Cum 2011
		Med	Max				Med	Max				Med	Max		
United States	163	259	344	663	1,040	—	0	60	—	1	—	0	31	—	—
New England	3	21	50	27	122	—	0	3	—	—	—	0	1	—	—
Connecticut	2	5	16	15	22	—	0	2	—	—	—	0	1	—	—
Maine	—	4	11	2	22	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	9	18	—	44	—	0	2	—	—	—	0	1	—	—
New Hampshire	—	1	7	—	11	—	0	0	—	—	—	0	0	—	—
Rhode Island	1	0	6	1	2	—	0	1	—	—	—	0	0	—	—
Vermont	—	1	9	9	21	—	0	1	—	—	—	0	0	—	—
Mid. Atlantic	32	21	51	158	71	—	0	11	—	—	—	0	6	—	—
New Jersey	17	0	41	107	—	—	0	1	—	—	—	0	2	—	—
New York (Upstate)	N	0	0	N	N	—	0	5	—	—	—	0	4	—	—
New York City	—	0	0	—	—	—	0	4	—	—	—	0	1	—	—
Pennsylvania	15	19	39	51	71	—	0	2	—	—	—	0	1	—	—
E.N. Central	37	65	114	213	314	—	0	13	—	—	—	0	6	—	—
Illinois	2	18	38	59	65	—	0	6	—	—	—	0	5	—	—
Indiana	1	5	20	17	19	—	0	2	—	—	—	0	1	—	—
Michigan	10	18	44	49	104	—	0	7	—	—	—	0	1	—	—
Ohio	24	21	47	88	126	—	0	3	—	—	—	0	3	—	—
Wisconsin	—	0	1	—	—	—	0	1	—	—	—	0	1	—	—
W.N. Central	—	11	32	6	70	—	0	9	—	1	—	0	7	—	—
Iowa	N	0	0	N	N	—	0	2	—	—	—	0	2	—	—
Kansas	—	7	21	—	33	—	0	1	—	—	—	0	0	—	—
Minnesota	—	0	1	—	—	—	0	1	—	—	—	0	1	—	—
Missouri	—	3	14	5	35	—	0	2	—	1	—	0	2	—	—
Nebraska	—	0	2	—	—	—	0	4	—	—	—	0	3	—	—
North Dakota	—	0	7	—	1	—	0	1	—	—	—	0	1	—	—
South Dakota	—	1	6	1	1	—	0	0	—	—	—	0	1	—	—
S. Atlantic	36	36	66	94	107	—	0	10	—	—	—	0	5	—	—
Delaware	—	0	2	—	1	—	0	1	—	—	—	0	0	—	—
District of Columbia	—	0	2	—	2	—	0	3	—	—	—	0	3	—	—
Florida	36	17	38	81	61	—	0	5	—	—	—	0	2	—	—
Georgia	N	0	0	N	N	—	0	2	—	—	—	0	1	—	—
Maryland	N	0	0	N	N	—	0	5	—	—	—	0	3	—	—
North Carolina	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
South Carolina	—	0	9	—	—	—	0	0	—	—	—	0	0	—	—
Virginia	—	10	27	13	19	—	0	2	—	—	—	0	0	—	—
West Virginia	—	6	32	—	24	—	0	1	—	—	—	0	0	—	—
E.S. Central	—	5	15	13	24	—	0	11	—	—	—	0	5	—	—
Alabama	—	5	14	11	20	—	0	2	—	—	—	0	0	—	—
Kentucky	N	0	0	N	N	—	0	2	—	—	—	0	1	—	—
Mississippi	—	0	2	2	4	—	0	5	—	—	—	0	4	—	—
Tennessee	N	0	0	N	N	—	0	3	—	—	—	0	1	—	—
W.S. Central	52	53	137	110	109	—	0	4	—	—	—	0	3	—	—
Arkansas	—	5	26	4	7	—	0	1	—	—	—	0	0	—	—
Louisiana	—	2	6	1	5	—	0	1	—	—	—	0	2	—	—
Oklahoma	N	0	0	N	N	—	0	1	—	—	—	0	0	—	—
Texas	52	46	133	105	97	—	0	3	—	—	—	0	3	—	—
Mountain	1	22	68	40	201	—	0	11	—	—	—	0	5	—	—
Arizona	1	4	50	4	61	—	0	7	—	—	—	0	4	—	—
Colorado	—	7	32	22	61	—	0	2	—	—	—	0	2	—	—
Idaho	N	0	0	N	N	—	0	1	—	—	—	0	1	—	—
Montana	—	2	15	—	46	—	0	1	—	—	—	0	0	—	—
Nevada	N	0	0	N	N	—	0	4	—	—	—	0	2	—	—
New Mexico	—	1	5	6	6	—	0	1	—	—	—	0	0	—	—
Utah	—	3	26	7	26	—	0	1	—	—	—	0	1	—	—
Wyoming	—	0	1	1	1	—	0	1	—	—	—	0	1	—	—
Pacific	2	2	9	2	22	—	0	18	—	—	—	0	7	—	—
Alaska	1	1	4	1	8	—	0	0	—	—	—	0	0	—	—
California	—	0	4	—	7	—	0	18	—	—	—	0	7	—	—
Hawaii	1	0	4	1	7	—	0	0	—	—	—	0	0	—	—
Oregon	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
Washington	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	N	0	0	N	N	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	2	4	—	1	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	2	10	—	16	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.
U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Case counts for reporting year 2011 and 2012 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. Data for TB are displayed in Table IV, which appears quarterly.

† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for California serogroup, eastern equine, Powassan, St. Louis, and western equine diseases are available in Table I.

§ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table, except starting in 2007 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/ncphi/disss/nndss/phs/infdis.htm.

TABLE III. Deaths in 122 U.S. cities,* week ending January 28, 2012 (4th week)

Reporting area	All causes, by age (years)						P&I† Total
	All Ages	≥65	45–64	25–44	1–24	<1	
New England	574	411	121	28	6	7	44
Boston, MA	138	87	38	8	4	—	13
Bridgeport, CT	40	33	7	—	—	—	4
Cambridge, MA	12	11	1	—	—	—	—
Fall River, MA	35	30	4	1	—	—	2
Hartford, CT	57	37	13	4	2	1	4
Lowell, MA	23	17	4	1	—	1	2
Lynn, MA	12	6	3	2	—	1	1
New Bedford, MA	18	16	1	1	—	—	1
New Haven, CT	49	32	13	2	—	2	5
Providence, RI	53	44	7	1	—	1	2
Somerville, MA	1	—	1	—	—	—	—
Springfield, MA	34	26	4	3	—	1	2
Waterbury, CT	41	28	11	2	—	—	3
Worcester, MA	61	44	14	3	—	—	5
Mid. Atlantic	1,942	1,346	443	82	31	40	99
Albany, NY	70	51	10	4	2	3	1
Allentown, PA	29	24	4	—	—	1	1
Buffalo, NY	73	51	17	2	1	2	7
Camden, NJ	30	16	8	4	1	1	1
Elizabeth, NJ	14	7	5	—	—	2	—
Erie, PA	68	53	12	3	—	—	4
Jersey City, NJ	26	16	10	—	—	—	1
New York City, NY	1,104	774	257	45	15	13	53
Newark, NJ	45	28	11	3	2	1	2
Paterson, NJ	17	10	4	1	2	—	1
Philadelphia, PA	113	69	20	10	3	11	4
Pittsburgh, PA§	50	32	15	2	—	1	3
Reading, PA	42	35	7	—	—	—	2
Rochester, NY	85	55	21	2	2	5	4
Schenectady, NY	31	20	10	1	—	—	4
Scranton, PA	32	25	6	1	—	—	3
Syracuse, NY	51	42	8	—	1	—	5
Trenton, NJ	28	16	8	2	2	—	2
Utica, NY	14	10	3	1	—	—	—
Yonkers, NY	20	12	7	1	—	—	1
E.N. Central	2,319	1,556	558	129	38	38	188
Akron, OH	55	36	15	1	3	—	5
Canton, OH	57	39	14	2	1	1	11
Chicago, IL	251	157	70	12	8	4	19
Cincinnati, OH	100	64	27	5	1	3	8
Cleveland, OH	337	244	67	21	3	2	21
Columbus, OH	292	196	62	15	8	11	28
Dayton, OH	146	102	31	11	1	1	16
Detroit, MI	158	84	55	12	5	2	7
Evansville, IN	39	30	7	1	—	1	6
Fort Wayne, IN	84	58	21	4	1	—	4
Gary, IN	12	5	5	1	1	—	—
Grand Rapids, MI	51	38	9	4	—	—	8
Indianapolis, IN	239	141	70	18	1	9	19
Lansing, MI	49	35	11	2	—	1	4
Milwaukee, WI	93	66	19	7	—	1	7
Peoria, IL	58	45	12	—	1	—	5
Rockford, IL	67	51	14	2	—	—	6
South Bend, IN	44	28	12	2	1	1	4
Toledo, OH	110	71	27	8	3	1	7
Youngstown, OH	77	66	10	1	—	—	3
W.N. Central	779	493	197	45	21	22	61
Des Moines, IA	132	88	34	6	1	3	10
Duluth, MN	26	19	6	1	—	—	7
Kansas City, KS	36	21	9	2	3	1	3
Kansas City, MO	105	70	24	8	3	—	4
Lincoln, NE	41	35	5	1	—	—	—
Minneapolis, MN	72	33	28	5	1	5	7
Omaha, NE	87	57	14	9	1	6	7
St. Louis, MO	135	70	40	8	10	6	8
St. Paul, MN	64	47	13	3	1	—	7
Wichita, KS	81	53	24	2	1	1	8

Reporting area (*Continued*)	All causes, by age (years)						P&I† Total
	All Ages	≥65	45–64	25–44	1–24	<1	
S. Atlantic	1,132	705	301	81	23	22	68
Atlanta, GA	190	114	50	21	3	2	3
Baltimore, MD	144	76	53	11	3	1	11
Charlotte, NC	152	98	43	6	3	2	9
Jacksonville, FL	12	6	4	2	—	—	—
Miami, FL	118	79	22	12	4	1	7
Norfolk, VA	50	34	11	2	1	2	2
Richmond, VA	65	35	22	5	2	1	5
Savannah, GA	60	36	14	5	3	2	1
St. Petersburg, FL	69	45	19	3	1	1	5
Tampa, FL	135	90	32	7	1	5	7
Washington, D.C.	122	82	29	5	2	4	17
Wilmington, DE	15	10	2	2	—	1	1
E.S. Central	1,064	690	280	65	16	13	118
Birmingham, AL	239	144	73	15	5	2	25
Chattanooga, TN	87	62	18	4	—	3	4
Knoxville, TN	103	73	22	6	2	—	18
Lexington, KY	83	55	23	4	—	1	11
Memphis, TN	215	140	57	10	4	4	26
Mobile, AL	137	92	34	10	—	1	11
Montgomery, AL	28	18	6	2	—	2	6
Nashville, TN	172	106	47	14	5	—	17
W.S. Central	1,234	807	263	101	38	25	67
Austin, TX	95	56	28	10	1	—	6
Baton Rouge, LA	68	39	15	8	4	2	—
Corpus Christi, TX	69	45	14	5	2	3	3
Dallas, TX	212	137	52	14	5	4	16
El Paso, TX	95	64	25	3	2	1	3
Fort Worth, TX	U	U	U	U	U	U	U
Houston, TX	116	65	18	13	13	7	8
Little Rock, AR	87	59	20	5	2	1	1
New Orleans, LA	U	U	U	U	U	U	U
San Antonio, TX	303	213	46	30	8	6	20
Shreveport, LA	27	20	5	1	—	1	2
Tulsa, OK	162	109	40	12	1	—	8
Mountain	1,262	855	299	66	20	20	97
Albuquerque, NM	141	103	24	9	4	1	16
Boise, ID	58	39	16	2	—	1	6
Colorado Springs, CO	80	55	18	3	2	2	2
Denver, CO	83	50	23	6	1	3	2
Las Vegas, NV	313	218	78	13	3	1	22
Ogden, UT	42	33	6	2	—	1	9
Phoenix, AZ	193	103	66	12	4	8	16
Pueblo, CO	31	25	4	1	1	—	—
Salt Lake City, UT	132	97	24	9	1	1	7
Tucson, AZ	189	132	40	9	4	2	17
Pacific	1,946	1,357	440	102	30	17	175
Berkeley, CA	18	8	6	—	1	3	3
Fresno, CA	122	84	31	6	1	—	10
Glendale, CA	31	24	3	4	—	—	7
Honolulu, HI	82	59	11	12	—	—	2
Long Beach, CA	99	66	26	4	3	—	11
Los Angeles, CA	279	187	69	15	4	4	30
Pasadena, CA	30	25	4	1	—	—	5
Portland, OR	139	96	33	7	3	—	9
Sacramento, CA	238	165	56	10	4	3	26
San Diego, CA	186	128	46	5	3	4	16
San Francisco, CA	109	78	23	6	1	1	9
San Jose, CA	219	170	33	13	3	—	26
Santa Cruz, CA	41	32	7	1	—	1	2
Seattle, WA	139	85	42	8	3	1	3
Spokane, WA	60	43	15	1	1	—	3
Tacoma, WA	154	107	35	9	3	—	13
Total¶	**12,252**	**8,220**	**2,902**	**699**	**223**	**204**	**917**

U: Unavailable. —: No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format. To receive an electronic copy each week, visit *MMWR*'s free subscription page at *http://www.cdc.gov/mmwr/mmwrsubscribe.html*. Paper copy subscriptions are available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone 202-512-1800.

Data presented by the Notifiable Disease Data Team and 122 Cities Mortality Data Team in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. Address all inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333 or to *mmwrq@cdc.gov.*

U.S. Government Printing Office: 2012-523-043/41102 Region IV ISSN: 0149-2195

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
QuickGuide / Vol. 61 / No. 4
February 3, 2012

Recommended Adult Immunization Schedule — United States, 2012

Each year, the Advisory Committee on Immunization Practices (ACIP) reviews the recommended adult immunization schedule to ensure that the schedule reflects current recommendations for licensed vaccines. In October 2011, ACIP approved the adult immunization schedule for 2012, which includes several changes from 2011. A footnote directing readers to links for the full ACIP vaccine recommendations and where to find additional information on specific vaccine recommendations for travelers is now included. In addition, a **Table** summarizing precautions and contraindications was added. This table is based on the corresponding table in the 12th edition of Epidemiology and Prevention of Vaccine-Preventable Diseases and is included to provide ready access to key safety information for adult vaccine providers (*1*).

Changes to the footnote for tetanus, diphtheria, and acellular pertussis (Tdap) and tetanus, diphtheria (Td) vaccines were made to update recommendations. Tdap vaccine is recommended specifically for persons who are close contacts of infants younger than 12 months of age (e.g., parents, grandparents, and child-care providers) and who have not received Tdap previously. Before 2011, vaccination postpartum was preferred for women who had not had a previous adult Tdap dose. However, in 2011, ACIP recommended pregnant women preferentially receive Tdap vaccination during later pregnancy (>20 weeks gestation). Other adults who are close contacts of children younger than 12 months of age continue to be recommended to receive a one-time dose of Tdap vaccine.

Updates to the footnotes and figures also were made for human papillomavirus (HPV) and hepatitis B vaccines based on recommendations made at the October 2011 ACIP meeting. The HPV vaccine recommendation has been updated to include routine vaccination of males 11–12 years of age, with catch-up vaccination recommended for males 13–21 years of age. HPV vaccine also is recommended for previously unvaccinated males 22–26 years of age who are immunocompromised, or who test positive for human immunodeficiency virus (HIV) infection, or who have sex with men.

ACIP also voted in October 2011 to recommend hepatitis B vaccine for adults <60 years of age who have diabetes, as soon as possible after diabetes is diagnosed. In addition, hepatitis B vaccination is recommended at the discretion of the treating clinician for adults with diabetes who are 60 years or older based on a patient's likely need for assisted blood glucose monitoring, likelihood of acquiring hepatitis B, and likelihood of immune response to vaccination.

A notation was included for zoster vaccine to acknowledge that the vaccine was recently approved by the Food and Drug Administration (FDA) for administration to persons 50 years of age and older; however, ACIP continues to recommend that vaccination begin at age 60 years. The influenza vaccine footnote was revised to specify age indications for the different licensed formulations of trivalent inactivated influenza vaccine (TIV). The footnote for the measles, mumps, rubella (MMR) vaccine was simplified to focus only on routine use of this vaccine in adults; information on use of the vaccine for outbreak control was removed. Readers are referred to the ACIP MMR recommendations and to the ACIP recommendations for the immunization of health-care personnel regarding the use of MMR vaccine in outbreak settings. Additional information on the use of quadrivalent meningococcal conjugate vaccine (MCV4) and meningococcal polysaccharide vaccine (MPSV4) for specific age and risk groups was added. Minor clarifications also were made to the footnotes for HPV vaccine, varicella vaccine, and pneumococcal polysaccharide vaccine (PPSV).

Additional information is available as follows: 1) immunization schedule (in English and Spanish) at http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm; 2) information regarding adult vaccination at http://www.cdc.gov/vaccines/default.htm; 3) ACIP statements for specific vaccines at http://www.cdc.gov/vaccines/pubs/acip-list.htm; and 4) reporting of adverse events at http://www.vaers.hhs.gov or by telephone, 800-822-7967. This schedule also has been presented to the American Academy of Family Physicians, the American College of Physicians, the American College of Obstetricians and Gynecologists and the American College of Nurse-Midwives for approval and publication in their respective journals.

The recommended adult immunization schedule has been approved by the Advisory Committee on Immunization Practices, the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, the American College of Physicians, and the American College of Nurse-Midwives.

Suggested citation: Centers for Disease Control and Prevention. Recommended adult immunization schedule—United States, 2012. MMWR 2012;61(4).

Footnote changes for 2012

- A new footnote (1), "Additional information," has been added to the beginning of the footnotes. This footnote provides links to the full ACIP vaccine recommendations and information on travel requirements that might have been referred to previously in subsequent footnotes.
- The "Influenza vaccination" footnote (2) was revised to clarify that all persons aged 6 months and older can receive TIV and that health-care personnel (HCP) who care for persons requiring a protected environment should receive TIV. HCP younger than 50 years who do not have a contraindication may receive either the live attenuated influenza vaccine or TIV. In addition, age indications for two recently licensed formulations of TIV were included. The link to additional information regarding influenza vaccination has been removed because a link now is provided in footnote 1.
- The "Human papillomavirus (HPV) vaccination" footnote (5) now clarifies that although HPV vaccination is not specifically recommended for HCP, HCP should receive the HPV vaccine if they are in the recommended age group. This footnote also was changed to reflect the recommendation of the quadrivalent human papillomavirus (HPV4) vaccine for males at age 11 or 12 years and catch-up vaccination for males 13 through 21 years of age. Males 22 through 26 years of age may be vaccinated with HPV4 vaccine.
- The "Zoster vaccination" footnote (6) now indicates that while zoster vaccination is not specifically recommended for HCP, HCP should receive the vaccine if they are in the recommended age group. This footnote also acknowledges that the vaccine is FDA-approved for use in persons 50 years and older; however, ACIP continues to recommend that vaccination begin at age 60 years.
- The link in the "Measles, mumps, rubella (MMR) vaccination" footnote (7) that directs the reader to more information about evidence of immunity has been removed. In addition, the information about the use of MMR vaccine in outbreak settings has been removed. Readers are referred to the ACIP MMR recommendations and to the ACIP recommendations for the immunization of health-care personnel regarding the use of MMR vaccine in outbreak settings.
- The "Pneumococcal polysaccharide (PPSV) vaccination" footnote (8) has been revised to include additional examples of functional and anatomic asplenia. Language is included for persons with asymptomatic or symptomatic HIV infection and persons undergoing cancer chemotherapy or who are on other immunosuppressive therapy.
- The "Revaccination with PPSV" footnote (9) has been revised to clarify guidance for those aged 65 years and older who had been vaccinated with PPSV23 before age 65 and for whom at least 5 years has passed since their previous dose.
- The "Meningococcal vaccination" footnote (10) has been revised to include military recruits in the group recommended to receive a single dose of meningococcal vaccine. The language about college students has been clarified to indicate that first-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday. Language regarding travel to sub-Saharan Africa and travel to Mecca has been removed, and readers are referred to the footnote on information about vaccines for travelers (1).
- The "Hepatitis B vaccination" footnote (12) has been revised to include persons with diabetes younger than 60 years old and persons 60 years and older based on need for assisted blood glucose monitoring.
- Finally, all footnotes were changed from paragraph form to a bulleted format to provide for greater ease in use of the recommendations.

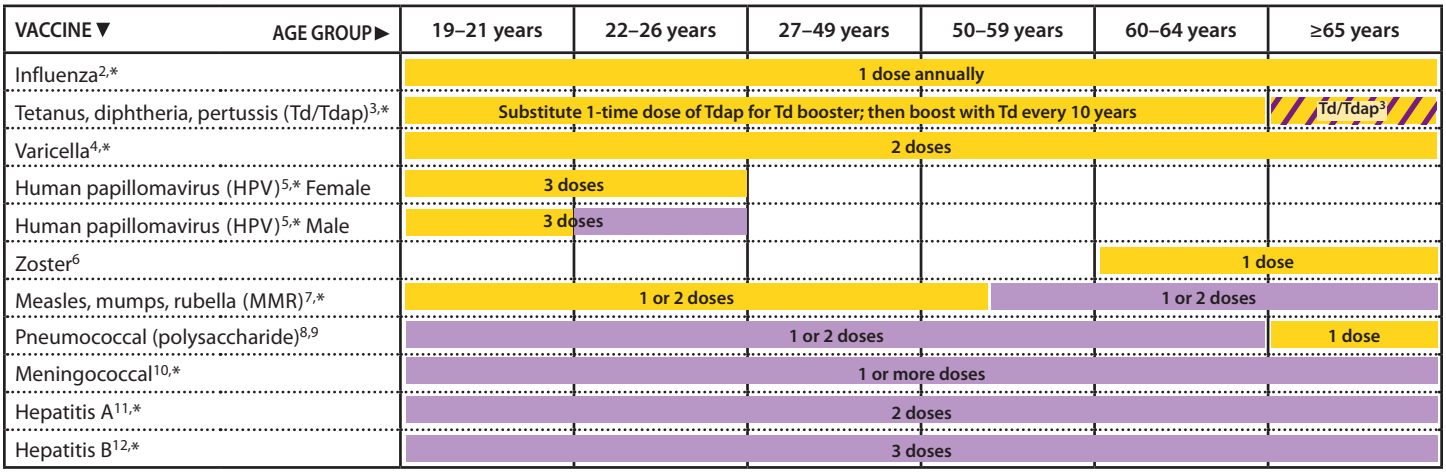
Figures

- For Figure 1, the bar for Tdap/Td for persons 65 years and older has been changed to a yellow and purple hashed bar to indicate that persons in this age group should receive 1 dose of Tdap if they are a close contact of an infant younger than 12 months of age. However, other persons 65 and older who are not close contacts of infants may receive either Tdap or Td.
- The 19–26 years age group was divided into 19–21 years and 22–26 years age groups. The HPV vaccine bar was split into separate bars for females and males. The recommendation for all males 19–21 years to receive HPV is indicated with a yellow bar, and a purple bar is used for 22–26 year old males to indicate that the vaccine is only for certain high-risk groups.
- For Figure 2, a new column was added for men who have sex with men (MSM) to note in the figure that MSM is an indication for HPV, hepatitis A, and hepatitis B vaccines.
- In addition, the diabetes indication was moved to the same column as chronic kidney disease to accommodate the new recommendation for hepatitis B vaccination of persons with diabetes.
- Because pregnant women not previously vaccinated with Tdap are now preferentially recommended for vaccination with Tdap during later pregnancy (>20 weeks gestation), the yellow bar has been extended across all risk groups.
- The HPV vaccine bar was separated into a bar for females and one for males. The bar for females is unchanged from the previous year except that the bar was extended to include HCP to clarify that HCP who are in the recommended age group for receipt of HPV vaccine are recommended for vaccination.
- Lastly, the HPV vaccine bar for males was added and indicates that all males through age 26 should be vaccinated if they are immunocompromised, have HIV, or are MSM. However, the age indication is through age 21 for males with or without these risk factors.

Reference

1. CDC. Epidemiology and prevention of vaccine-preventable diseases. Atkinson W, Wolfe S, Hamborsky J, eds. 12th ed. Washington DC: Public Health Foundation; 2011.

FIGURE 1. Recommended adult immunization schedule, by vaccine and age group[1] — United States, 2012



* Covered by the Vaccine Injury Compensation Program

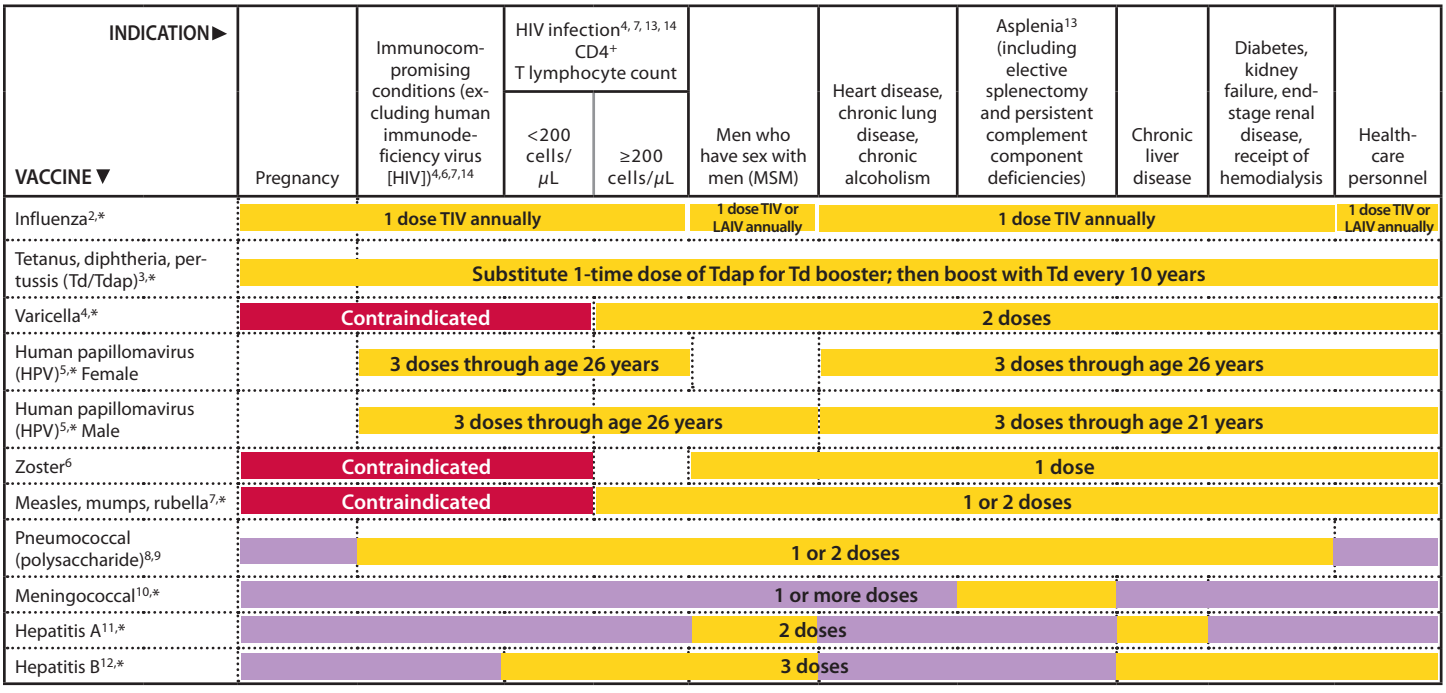
For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

Tdap recommended for ≥65 if contact with <12 month old child. Either Td or Tdap can be used if no infant contact

No recommendation

FIGURE 2. Vaccines that might be indicated for adults, based on medical and other indications[1] — United States, 2012



* Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

Contraindicated

No recommendation

NOTE: The above recommendations must be read along with the footnotes on pages 4–5 of this schedule.

1. **Additional information**
   - Advisory Committee on Immunization Practices (ACIP) vaccine recommendations and additional information are available at: http://www.cdc.gov/vaccines/pubs/acip-list.htm.
   - Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) available at http://wwwnc.cdc.gov/travel/page/vaccinations.htm.
2. **Influenza vaccination**
   - Annual vaccination against influenza is recommended for all persons 6 months of age and older.
   - Persons 6 months of age and older, including pregnant women, can receive the trivalent inactivated vaccine (TIV).
   - Healthy, nonpregnant adults younger than age 50 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or TIV. Health-care personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive TIV rather than LAIV. Other persons should receive TIV.
   - The intramuscular or intradermal administered TIV are options for adults aged 18–64 years.
   - Adults aged 65 years and older can receive the standard dose TIV or the high-dose TIV (Fluzone High-Dose).
3. **Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination**
   - Administer a one-time dose of Tdap to adults younger than age 65 years who have not received Tdap previously or for whom vaccine status is unknown to replace one of the 10-year Td boosters.
   - Tdap is specifically recommended for the following persons:
     — pregnant women more than 20 weeks' gestation,
     — adults, regardless of age, who are close contacts of infants younger than age 12 months (e.g., parents, grandparents, or child care providers), and
     — health-care personnel.
   - Tdap can be administered regardless of interval since the most recent tetanus or diphtheria-containing vaccine.
   - Pregnant women not vaccinated during pregnancy should receive Tdap immediately postpartum.
   - Adults 65 years and older may receive Tdap.
   - Adults with unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series. Tdap should be substituted for a single dose of Td in the vaccination series with Tdap preferred as the first dose.
   - For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second.
   - If incompletely vaccinated (i.e., less than 3 doses), administer remaining doses.

   Refer to the ACIP statement for recommendations for administering Td/Tdap as prophylaxis in wound management (See footnote 1).
4. **Varicella vaccination**
   - All adults without evidence of immunity to varicella (as defined below) should receive 2 doses of single-antigen varicella vaccine or a second dose if they have received only 1 dose.
   - Special consideration for vaccination should be given to those who
     — have close contact with persons at high risk for severe disease (e.g., health-care personnel and family contacts of persons with immunocompromising conditions) or
     — are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).
   - Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. The second dose should be administered 4–8 weeks after the first dose.
   - Evidence of immunity to varicella in adults includes any of the following:
     — documentation of 2 doses of varicella vaccine at least 4 weeks apart;
     — U.S.-born before 1980 (although for health-care personnel and pregnant women, birth before 1980 should not be considered evidence of immunity);
     — history of varicella based on diagnosis or verification of varicella by a health-care provider (for a patient reporting a history of or having an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link to a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease);
     — history of herpes zoster based on diagnosis or verification of herpes zoster by a health-care provider; or
     — laboratory evidence of immunity or laboratory confirmation of disease.
5. **Human papillomavirus (HPV) vaccination**
   - Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).
   - For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at 11 or 12 years of age, and for those 13 through 26 years of age, if not previously vaccinated.
   - For males, HPV4 is recommended in a 3-dose series for routine vaccination at 11 or 12 years of age, and for those 13 through 21 years of age, if not previously vaccinated. Males 22 through 26 years of age may be vaccinated.
   - HPV vaccines are not live vaccines and can be administered to persons who are immunocompromised as a result of infection (including HIV infection), disease, or medications. Vaccine is recommended for immunocompromised persons through age 26 years who did not get any or all doses when they were younger. The immune response and vaccine efficacy might be less than that in immunocompetent persons.
   - Men who have sex with men (MSM) might especially benefit from vaccination to prevent condyloma and anal cancer. HPV4 is recommended for MSM through age 26 years who did not get any or all doses when they were younger.
   - Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, persons who are sexually active should still be vaccinated consistent with age-based recommendations. HPV vaccine can be administered to persons with a history of genital warts, abnormal Papanicolaou test, or positive HPV DNA test.
   - A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 1–2 months after the first dose; the third dose should be administered 6 months after the first dose (at least 24 weeks after the first dose).
   - Although HPV vaccination is not specifically recommended for health-care personnel (HCP) based on their occupation, HCP should receive the HPV vaccine if they are in the recommended age group.
6. **Zoster vaccination**
   - A single dose of zoster vaccine is recommended for adults 60 years of age and older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons 50 years and older, ACIP recommends that vaccination begins at 60 years of age.
   - Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
   - Although zoster vaccination is not specifically recommended for health-care personnel (HCP), HCP should receive the vaccine if they are in the recommended age group.
7. **Measles, mumps, rubella (MMR) vaccination**
   - Adults born before 1957 generally are considered immune to measles and mumps. All adults born in 1957 or later should have documentation of 1 or more doses of MMR vaccine unless they have a medical contraindication to the vaccine, laboratory evidence of immunity to each of the three diseases, or documentation of provider-diagnosed measles or mumps disease. For rubella, documentation of provider-diagnosed disease is not considered acceptable evidence of immunity.

   Measles component:
   - A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who
     — are students in postsecondary educational institutions;
     — work in a health-care facility; or
     — plan to travel internationally.
   - Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type from 1963 to 1967 should be revaccinated with 2 doses of MMR vaccine.

   Mumps component:
   - A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who
     — are students in postsecondary educational institutions;
     — work in a health-care facility; or
     — plan to travel internationally.
   - Persons vaccinated before 1979 with either killed mumps vaccine or mumps vaccine of unknown type who are at high risk for mumps infection (e.g., persons who are working in a health-care facility) should be considered for revaccination with 2 doses of MMR vaccine.

   Rubella component:
   - For women of childbearing age, regardless of birth year, rubella immunity should be determined. If there is no evidence of immunity, women who are not pregnant should be vaccinated. Pregnant women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the health-care facility.

   Health-care personnel born before 1957:
   - For unvaccinated health-care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health-care facilities should consider routinely vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.
8. **Pneumococcal polysaccharide (PPSV) vaccination**
   - Vaccinate all persons with the following indications:
     — age 65 years and older without a history of PPSV vaccination;
     — adults younger than 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver disease (including cirrhosis); alcoholism; cochlear implants; cerebrospinal fluid leaks; immunocompromising conditions; and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);
     — residents of nursing homes or long-term care facilities; and
     — adults who smoke cigarettes.
   - Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.

- When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
- Routine use of PPSV is not recommended for American Indians/Alaska Natives or other persons younger than 65 years of age unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.

9. Revaccination with PPSV

- One-time revaccination 5 years after the first dose is recommended for persons 19 through 64 years of age with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions.
- Persons who received PPSV before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses are needed for persons vaccinated with PPSV at or after age 65 years.

10. Meningococcal vaccination

- Administer 2 doses of meningococcal conjugate vaccine quadrivalent (MCV4) at least 2 months apart to adults with functional asplenia or persistent complement component deficiencies.
- HIV-infected persons who are vaccinated should also receive 2 doses.
- Administer a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of *Neisseria meningitidis*, military recruits, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.
- First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
- MCV4 is preferred for adults with any of the preceding indications who are 55 years old and younger; meningococcal polysaccharide vaccine (MPSV4) is preferred for adults 56 years and older.
- Revaccination with MCV4 every 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia or persistent complement component deficiencies).

11. Hepatitis A vaccination

- Vaccinate any person seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:
  - men who have sex with men and persons who use injection drugs;
  - persons working with HAV-infected primates or with HAV in a research laboratory setting;
  - persons with chronic liver disease and persons who receive clotting factor concentrates;
  - persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and
  - unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. (See footnote 1 for more information on travel recommendations). The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.
- Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix), or 0 and 6–18 months (Vaqta). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule may be used, administered on days 0, 7, and 21–30 followed by a booster dose at month 12.

12. Hepatitis B vaccination

- Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:
  - sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection-drug users; and men who have sex with men;
  - health-care personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids;
  - persons with diabetes younger than 60 years as soon as feasible after diagnosis; persons with diabetes who are 60 years or older at the discretion of the treating clinician based on increased need for assisted blood glucose monitoring in long-term care facilities, likelihood of acquiring hepatitis B infection, its complications or chronic sequelae, and likelihood of immune response to vaccination;
  - persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection; and persons with chronic liver disease;
  - household contacts and sex partners of persons with chronic HBV infection; clients and staff members of institutions for persons with developmental disabilities; and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and
  - all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings targeting services to injection-drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential daycare facilities for persons with developmental disabilities.
- Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. The second dose should be administered 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, administered on days 0, 7, and 21–30 followed by a booster dose at month 12 may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 μg/mL (Recombivax HB) administered on a 3-dose schedule or 2 doses of 20 μg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

13. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used

- 1 dose of Hib vaccine should be considered for persons who have sickle cell disease, leukemia, or HIV infection, or who have anatomic or functional asplenia if they have not previously received Hib vaccine.

14. Immunocompromising conditions

- Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and influenza [inactivated influenza vaccine]), and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at http://www.cdc.gov/vaccines/pubs/acip-list.htm.

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2012. For all vaccines being recommended on the adult immunization schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (http:// www.cdc.gov/vaccines/pubs/acip-list.htm).

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at http://www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. Information about filing a claim for vaccine injury is available through the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination also is available at http://www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. to 8:00 p.m., Monday through Friday, excluding holidays.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

U.S. Department of Health and Human Services • Centers for Disease Control and Prevention

TABLE. Contraindications and precautions to commonly used vaccines in adults[1*†]

Vaccine	Contraindications	Precautions
Influenza, injectable trivalent (TIV)	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine or to a vaccine component, including egg protein.	Moderate or severe acute illness with or without fever. History of Guillain-Barré syndrome (GBS) within 6 weeks of previous influenza vaccination.
Influenza, live attenuated (LAIV)[2]	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine or to a vaccine component, including egg protein. Immune suppression. Certain chronic medical conditions such as asthma, diabetes, heart or kidney disease.[3] Pregnancy.	Moderate or severe acute illness with or without fever. History of GBS within 6 weeks of previous influenza vaccination. Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48 hours before vaccination. Avoid use of these antiviral drugs for 14 days after vaccination.
Tetanus, diphtheria, pertussis (Tdap); tetanus, diphtheria (Td)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of Tdap or diphtheria and tetanus toxoids and pertussis (DTP) or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.	Moderate or severe acute illness with or without fever. GBS within 6 weeks after a previous dose of tetanus toxoid--containing vaccine. History of arthus-type hypersensitivity reactions after a previous dose of tetanus or diptheria toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid–containing vaccine. For Tdap only: Progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Varicella,[2]	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy[4] or patients with human immunodeficiency virus (HIV) infection who are severely immunocompromised). Pregnancy.	Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product).[5] Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; if possible, delay resumption of these antiviral drugs for 14 days after vaccination.
Human papillomavirus (HPV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Zoster	Severe allergic reaction (e.g., anaphylaxis) to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy[4] or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; if possible, avoid use of these antiviral drugs for 14 days after vaccination.

See table footnotes on page 7.

TABLE. (*Continued*) Contraindications and precautions to commonly used vaccines in adults1*†

Vaccine	Contraindications	Precautions
Measles, mumps, rubella (MMR)[2]	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy[4] or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product).[6] History of thrombocytopenia or thrombocytopenic purpura. Need for tuberculin skin testing.[7]
Pneumococcal polysaccharide (PPSV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Meningococcal, conjugate, (MCV4); meningococcal, polysaccharide (MPSV4)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Hepatitis A (HepA)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Hepatitis B (HepB)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.

1. Vaccine package inserts and the full ACIP recommendations for these vaccines should be consulted for additional information on vaccine-related contraindications and precautions and for more information on vaccine excipients. Events or conditions listed as precautions should be reviewed carefully. Benefits of and risks for administering a specific vaccine to a person under these circumstances should be considered. If the risk from the vaccine is believed to outweigh the benefit, the vaccine should not be administered. If the benefit of vaccination is believed to outweigh the risk, the vaccine should be administered.
2. LAIV, MMR, and varicella vaccines can be administered on the same day. If not administered on the same day, these live vaccines should be separated by at least 28 days.
3. See CDC. Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010. MMWR 2010;59(No. RR-8). Available at http://www.cdc.gov/vaccines/pubs/acip-list.htm.
4. Substantially immunosuppressive steroid dose is considered to be ≥2 weeks of daily receipt of 20 mg or 2 mg/kg body weight of prednisone or equivalent.
5. Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered.
6. See CDC. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2011;60(No. RR-2). Available at http://www.cdc.gov/vaccines/pubs/acip-list.htm.
7. Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for ≥4 weeks after the vaccination. If an urgent need exists to skin test, do so with the understanding that reactivity might be reduced by the vaccine.

* Adapted from CDC. Table 6. Contraindications and precautions to commonly used vaccines. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices. MMWR 2011;60(No. RR-2):40-41 and from Atkinson W, Wolfe S, Hamborsky J, eds. Appendix A. Epidemiology and prevention of vaccine preventable diseases. 12th ed. Washington, DC: Public Health Foundation, 2011. Available at http://www.cdc.gov/vaccines/pubs/pinkbook/default.htm.

† Regarding latex allergy: some types of prefilled syringes contain natural rubber latex or dry natural latex rubber. Consult the package insert for any vaccine administered.

More information on vaccine components, contraindications, and precautions also is available from specific vaccine package inserts and ACIP recommendations for specific vaccines, and is summarized in Atkinson W, Wolfe S, Hamborsky J, eds. Epidemiology and prevention of vaccine preventable diseases. 12th ed. Washington, DC: Public Health Foundation, 2011. Available at http://www.cdc.gov/vaccines/pubs/pinkbook/default.htm.