household members, an adult member was present and agreed to participate in the survey. In all, 63% of persons aged ≥10 years answered the question about swallowing the MDA tablets themselves; for the remaining 37%, the question was answered by a proxy adult household member. In a weighted analysis of all seven strata, the answer to the question about swallowing the MDA drugs was "yes" for 71% (95% confidence interval = 69%–74%), "no" for 23%, and "don't know" for 6% (Table) of household members in the sample. In all, 97% of "don't know" answers were from proxy respondents for household members who were absent. "Yes" answers, by stratum, ranged from 60% in Tabarre Commune to 77% in the IDP camps. By this measure, two of the strata, Tabarre and Pétion-Ville Communes, did not achieve adequate (≥65%) coverage. Coverage by sex was nearly the same (71% among females, 72% among males.) Among persons aged ≥2 years, coverage was lowest (55%) among children aged 2–4 years and highest (83%) among children aged 5–14 years, declining gradually in older age groups to 62% overall among persons aged ≥65 years. The coverage-by-age group curve for non-IDP camp residents was slightly lower, but generally paralleled the curve for IDP camp residents, except for the oldest age group, for which non-IDP coverage declined and IDP-camp resident coverage increased (Figure).

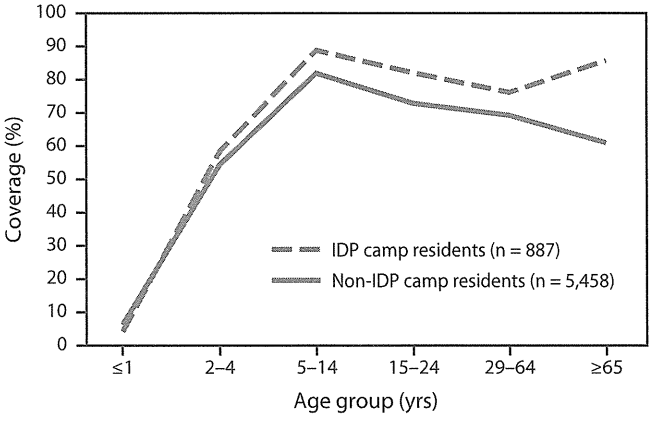
A total of 1,976 adults were interviewed with the KAP questionnaire. Because 70% of the respondents were women, who were more often at home than men, the following results were weighted according to selection probabilities and nonresponse rates by gender. In all, 88% of respondents said they heard about the MDA before it began; 74% said they were given tablets during the MDA, and 71% said they swallowed the tablets. Only 50% of those who did not hear about the MDA in advance swallowed the tablets, compared with 74% among those who heard about the MDA in advance. The most commonly mentioned preferred means of communication for those who did not hear about the MDA in advance were television (30%), radio (28%), community resource persons (17%), and a vehicle with loudspeaker (15%).

Most respondents who received tablets got them at a distribution post (85%); less common sites were home (8%) and school (4%). When asked about the distance to the nearest distribution point from their home, 77% of those who did not receive tablets answered that they did not know or were not aware of a distribution point, as compared with 6% of those who received tablets. The most common reason for not swallowing tablets that were received was concern about safety or becoming ill (61%). Among all persons given tablets at a distribution post, 76% swallowed them at the post; 13% reported that no water was available at the post (because of the threat of cholera, the program sought to offer a source of safe drinking water at distribution posts by purchasing water in small plastic bags from commercial sources; persons seeking treatment were given the tablets to swallow at home when distributors ran out of the plastic bags of water). Among all those who swallowed the drugs, 34% reported having adverse events within a day, most often nausea or vomiting (62%), and fatigue (42%).

TABLE. Estimated treatment coverage resulting from mass drug administration for lymphatic filariasis during December 2011–February 2012 — household survey, Port-au-Prince, Haiti, May 2012

Survey stratum	"Did you [or name of person for whom respondent answered] swallow tablets for lymphatic filariasis during the last mass drug distribution?" (%)			Sample size
	Yes	No	Do not know	
Carrefour Commune	75	20	5	1,111
Cité Soleil Commune	75	20	4	855
Delmas Commune	71	23	6	829
Pétion-Ville Commune	62	31	7	911
Port-au-Prince Commune	72	22	6	827
Tabarre Commune	60	29	11	925
Internally displaced person camps within the six communes	77	19	4	887
All strata (weighted averages and total)	71	23	6	6,345

FIGURE. Estimated treatment coverage resulting from mass drug administration for lymphatic filariasis, December 2011–February 2012, by age group and residence in internally displaced person (IDP) camps — household survey, Port-au-Prince, Haiti, May 2012



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What is already known on this topic?

Haiti is one of four countries in the Americas where lymphatic filariasis is still endemic. Approximately 9.7 million persons are at risk for lymphatic filariasis in Haiti. By late 2011, at least one round of mass drug administration (MDA) with albendazole and diethylcarbamazine had been conducted in all endemic parts of the country except the capital, Port-au-Prince.

What is added by this report?

A household survey conducted after the first MDA in Port-au-Prince showed that overall coverage with albendazole and diethylcarbamazine was 71% and that five of the seven populations within Port-au-Prince surveyed (residents of six communes and of camps for internally displaced persons) achieved adequate coverage (≥65%). The survey also showed that informing a greater percentage of adults in advance about the MDA and more effectively addressing concerns about safety and side effects might increase coverage. In addition, it showed that coverage estimates for the Port-au-Prince area based on tallies of the number of persons treated and population estimates were inaccurate.

What are the implications for public health practice?

Haiti's National Program for the Elimination of Lymphatic Filariasis will intensify the dissemination of specific health education messages before subsequent MDAs in Port-au-Prince and rely on household surveys to measure the coverage achieved in the Port-au-Prince area.

Editorial Note

The 71% MDA coverage calculated by the household survey in Port-au-Prince demonstrates that despite substantial obstacles posed by recent natural disasters and public health emergencies, Haiti has taken an important step toward meeting the challenge of LF elimination. Future MDA efforts should incorporate strategies that were identified in this analysis as potentially important to increase coverage and sustain program success.

MDA coverage, as determined by survey results, was inadequate (<65%) among permanent residents of Tabarre Commune (60%) and Pétion-Ville Commune (62%). This classification is conservative because these communes had the highest proportions of "don't know" answers to the coverage question (11% and 7%, respectively), the consequence of accepting adults as proxy respondents for household members not available when the survey team visited. If only persons who responded "yes" or "no" are considered, then the coverage estimates for these communes would be ≥65%. For future MDA coverage surveys in Port-au-Prince, survey teams could reduce the percentage of "don't know" answers by making repeat visits, including in the evening and on subsequent days, if needed, even if doing so within resource constraints requires smaller sample sizes or combining strata.

Although the coverage survey results might have been lowered slightly by "don't know" answers, they likely present a more accurate estimate of coverage than the 92% derived from reports of doses administered and estimated population sizes. Such estimates of coverage (sometimes called "administrative") can be in error because of inaccurate denominators, inaccurate reporting of doses administered, and treatment of persons outside their area of residence. The administrative result of 160% for Tabarre Commune clearly reflects one or more of these problems. At present, administrative coverage appears to be too inaccurate to be of value in Port-au-Prince; additional household surveys are planned to track MDA coverage.

Coverage estimates among adult respondents who stated that they heard about the MDA before it began were higher than among those who had not heard about it, suggesting that broadening the reach of pre-MDA communication, including by the means preferred by those who did not hear about the MDA in advance, might increase coverage. The survey also showed that the majority of respondents who did not receive tablets either were not aware of a distribution point or did not know how far away it was. Guidance on narrowing this knowledge gap might be provided by a follow-up study focused on the reasons for the lack of awareness, in particular, on whether post locations were systematically announced by megaphone throughout each post's catchment area daily during the MDA, as intended. Further efforts to disseminate information on the safety of the drugs also might increase coverage by addressing concerns about safety and becoming ill, which were the most common reasons for not swallowing tablets that had been received. These interventions for increasing coverage might help sustain progress toward national LF elimination. The 2011–2012 MDA in Port-au-Prince demonstrated that Haiti has the capacity to achieve this goal.

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Emergency Department Visits by Patients with Mental Health Disorders — North Carolina, 2008–2010

Patients with mental health disorders (MHDs) use the emergency department (ED) for acute psychiatric emergencies, for injuries and illnesses complicated by or related to their MHD, or when psychiatric or primary-care options are inaccessible or unavailable (*1,2*). An estimated 5% of ambulatory-care visits in the United States during 2007–2008 were made by patients with primary mental health diagnoses (*3*). To measure the incidence of ED visits in North Carolina with MHD diagnostic codes (MHD-DCs), the Carolina Center for Health Informatics (University of North Carolina at Chapel Hill) analyzed ED visits occurring during the period 2008–2010 captured by the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). This report describes the results of that analysis, which indicated that nearly 10% of ED visits had one or more MHD-DCs assigned to the visit and the rate of MHD-DC-related ED visits increased seven times as much as the overall rate of ED visits in North Carolina during the study period. Those with an MHD-DC were admitted to the hospital from the ED more than twice as often as those without MHD-DCs. Stress, anxiety, and depression were diagnosed in 61% of MHD-DC-related ED visits. The annual rate of MHD-DC-related ED visits for those aged ≥65 years was nearly twice the rate of those aged 25–64 years; half of those aged ≥65 years with MHD-DCs were admitted to the hospital from the ED. Mental health is an important component of public health (*4*). Surveillance is needed to describe trends in ED use for MHDs to develop strategies to prevent hospitalization, improve access to ambulatory care, and develop new ways to provide ED care for the elderly with MHDs.

ED visit data for the period 2008–2010 were extracted from NC DETECT, a population-based, statewide public health surveillance system that contains ED visit data (*5,6*) for 99% of ED visits in North Carolina occurring during the study period. ED visits were characterized by sex and age group, ED disposition, and type of MHD. MHD-DCs were identified from the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes for mental disorders (290–299); symptoms, signs, and ill-defined conditions (787–789.9); and supplementary codes (V11–79). ICD-9-CM codes for poisoning and overdose, metabolic or structural encephalopathies that are classified as psychiatric diagnostic codes by ICD-9-CM, substance abuse disorders, and tobacco use disorder were excluded. For each ED visit, a mental health ICD-9-CM diagnostic code in any one of up to 11 positions classified that visit as MHD-DC-related. Visit records with more than one MHD-DC were counted as a single MHD-DC-related visit. Using the first-listed MHD-DC for the ED visit, MHDs were subcategorized into 11 groups of clinically similar diagnostic categories for calculating rates. For purposes of regression analyses, all MHD-DCs were classified as present or absent for each ED visit. Data were extracted and stratified for univariate and two-way descriptive analyses, and annual rates were calculated per 10,000 population. Risk ratios were computed using log binomial regression with Poisson robust variances.

From 2008 to 2010, the annual number of ED visits in North Carolina increased by 5.1%, from 4,190,911 to 4,405,676, and MHD-DC-related ED visits increased by 17.7%, from 347,806 to 409,276 (Table 1). By 2010, ED visits with MHD-DCs accounted for 9.3% of all ED visits; 31.1% of ED visits with MHC-DCs resulted in hospital admission, compared with 14.1% of all ED visits.

For each ED visit, up to 11 diagnostic codes are captured by NC DETECT. One quarter of first-listed MHD-DCs were in the first-listed diagnostic code position, 56% of the MHD-DCs were within the first three diagnostic code positions, and 77% were within the first five. "Stress/Anxiety/Depressive disorders" was the MHD-DC category with the highest number of ED visits (Table 2).

Increasing age was associated with an increase in hospital admission, with 14% of children aged <15 years admitted and 51% of adults aged ≥65 years admitted (Table 3). The highest admission proportion was for ED visits associated with dementia (60.5%) (Table 2). Population-based rates of MHD-DC related visits for those aged ≥65 years were very high for any MHD diagnosis compared with all other age groups, driven primarily by higher rates of schizophrenia/delusions/psychoses, dementia, and stress/anxiety/depression (Table 4).

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Editorial Note

The ED is an important link between outpatient and inpatient services for the care of patients with MHDs. ED visits by patients with MHD-DCs are increasing more rapidly than

TABLE 1. Number and percentage of emergency department (ED) visits related to mental health disorders (MHDs) compared with all other ED visits, overall and among those resulting in hospital admission — North Carolina, 2008–2010

	2008			2009			2010		
	ED visits overall			ED visits overall			ED visits overall		
Type of ED visit	No.	(%)	Rate per 10,000 population	No.	(%)	Rate per 10,000 population	No.	(%)	Rate per 10,000 population
MHD-related visits	347,806	(8.3)	376	381,700	(8.7)	407	409,276	(9.3)	430
All other ED visits	4,190,911	(100.0)	4,532	4,382,028	(100.0)	4,670	4,405,676	(100.0)	4,628

	2008		2009		2010	
	ED visits resulting in hospital admission		ED visits resulting in hospital admission		ED visits resulting in hospital admission	
Type of ED visit	No.	(%)	No.	(%)	No.	(%)
MHD-related visits	116,936	(35.7)	123,429	(34.1)	126,808	(31.1)
All other ED visits	580,655	(14.8)	597,177	(14.2)	619,831	(14.1)

TABLE 2. Mental health disorders (MHDs) resulting in emergency department (ED) visits and hospital admissions, by diagnostic category — North Carolina, 2008–2010

		% of MHD-related ED visits in this category†				
Type of MHD*	ICD-9-CM codes	2008	2009	2010	Risk ratio for hospital admission§	Mean % admitted 2008–2010
Stress/Anxiety/Depression	300 (excluding 300.9), 306, 308, 309, 311, 313.1, V11.2, V69.8, V79.0	60.78	61.70	62.33	0.91 (0.90–0.92)	28.89
Schizophrenia/Delusional/Psychosis	294.0, 294.8, 294.9, 295, 297, 298, V11.0	19.89	19.37	19.49	1.08 (1.07–1.09)	42.99
Bipolar	296, V11.1	17.96	18.26	18.32	1.28 (1.27–1.29)	37.32
Suicidal/Homicidal ideation	300.9, V62.84, V62.85	6.69	6.87	6.82	1.44 (1.42–1.45)	40.01
Dementia	290, 294.1, 294.2	5.99	5.53	5.21	1.26 (1.25–1.27)	60.54
Personality/Conduct disorder	301, 312	3.03	2.93	2.05	1.37 (1.35–1.39)	48.38
Miscellaneous/Other¶	302, 307 (excluding 307.1, 307.5, 307.8), V11.8, V11.9, V15.4 (excluding V15.41)	1.61	1.47	1.41	0.81 (0.79–0.83)	24.49
Psychiatric examination	V70.1, V70.2, V71.0	1.02	1.06	1.03	0.49 (0.47–0.52)	13.35
Mental disorders from brain damage	310	0.74	0.69	0.68	0.86 (0.83–0.89)	23.81
Developmental disorders originating in childhood	299	0.64	0.75	0.71	0.96 (0.91–1.01)	15.87
Eating disorders	307.1, 307.5	0.20	0.44	0.16	1.01 (0.95–1.06)	32.36

Abbreviation: ICD-9-CM = *International Classification of Diseases, Ninth Revision, Clinical Modification*.

* Up to 11 ICD-9-CM diagnostic codes were examined to classify presence or absence of categories of MHDs.

† Percentages in each column sum to more than 100% because 16% of MHD-related ED visits during 2008–2010 were counted in more than one MHD category.

§ Risk ratio for the presence of each condition versus its absence, controlling for number of diagnostic codes of any type (classified as either 6–11 codes or 1–5 codes), tobacco use, and presence or absence of nine comorbidities (substance abuse, injury, asthma/chronic obstructive pulmonary disorder, cancer, diabetes/hypoglycemia, heart failure, hepatic failure, renal failure, and obesity). Computed using log binomial regression with Poisson robust variances.

¶ Includes sexual and gender-identity disorders, personal history of other or unspecified mental disorder, personal history of psychiatric trauma, and special symptoms or syndromes not elsewhere classified.

general ED visits (*3,7*). Only minor changes in ICD-9-CM codes have been issued since October 2000 (*8*), so coding procedures for MHD likely did not change greatly during the course of the study. In this study, population-based rates of MHD-DC-related ED visits in North Carolina increased progressively from 2008 to 2010, by 14.4%, whereas the rate of all ED visits increased by only 2.1%. The rate of MHD-DC-related ED visits by patients of all ages is increasing but is especially high for those aged ≥65 years, who have the highest MHD-DC-related ED visit rate of any age group and the highest risk ratio (2.2) for hospital admission. Patients with stress/anxiety/depression accounted for the majority (60.8%) of the MHD-DC related ED visits, an unanticipated finding because such disorders often are more appropriately treated in an office setting. Hospital admissions for ED visits with MHD-DCs decreased from 35.7% in 2008 to 31.1% in 2010. The reasons for this decrease are unclear.

TABLE 3. Risk for hospital admission after emergency department (ED) visits related to mental health disorders (MHDs) versus all ED visits, by age group — North Carolina, 2008–2010

Age group (yrs)	Risk ratio for hospital admission after an MHD-related ED visit*	% of MHD-related ED visits occurring in this age group	% of MHD-related ED visits in this age group resulting in hospital admission	% of all ED visits in this age group resulting in hospital admission
0–14	1.00 (referent)	2.30	14.03	3.73
15–24	1.22 (1.18–1.26)	10.99	17.70	4.70
25–44	1.36 (1.31–1.40)	31.12	22.19	7.84
45–64	1.79 (1.73–1.86)	28.33	36.52	20.01
≥65	2.21 (2.13–2.28)	27.25	51.19	38.76

* Computed using log binomial regression with Poisson robust variances, controlling for other MHDs, tobacco use, and presence or absence of nine comorbidities (substance abuse, injury, asthma/chronic obstructive pulmonary disorder, cancer, diabetes/hypoglycemia, heart failure, hepatic failure, renal failure, and obesity).

TABLE 4. Population-based rates* of emergency department (ED) visits related to mental health disorders (MHDs), by diagnostic category, age group, and year — North Carolina, 2008–2010

		Diagnostic category†										
Age group and year	Any MHD diagnosis (all categories combined)	Stress/ Anxiety/ Depression	Schizophrenia/ Delusional/ Psychosis	Bipolar	Suicidal/ Homicidal ideation	Dementia	Personality/ Conduct disorder	Miscellaneous/ Other	Psychiatric examination	Mental disorders from brain damage	Developmental disorders originating in childhood	Eating disorders
0–14 yrs												
2008	43.7	15.5	1.7	8.3	2.8	0.1	4.1	1.7	1.4	1.0	6.8	0.3
2009	50.2	16.2	1.9	8.4	3.4	0.2	4.2	1.8	1.1	1.1	8.8	3.1
2010	48.1	16.8	1.9	8.8	3.5	0.2	4.4	1.8	1.2	1.3	7.8	0.4
15–24 yrs												
2008	288.3	170.8	18.5	57.0	17.4	0.4	7.7	4.0	4.9	3.5	3.2	0.7
2009	316.6	183.9	18.1	66.6	20.1	0.3	8.2	4.4	5.5	4.0	3.8	1.7
2010	331.3	192.1	20.7	68.3	22.7	0.2	8.8	4.0	5.5	3.9	4.2	0.8
25–44 yrs												
2008	415.4	260.8	32.4	87.4	18.1	0.2	4.9	3.8	4.0	2.6	0.7	0.6
2009	455.4	288.2	31.8	95.2	21.0	0.4	5.5	4.1	4.1	2.8	1.1	1.3
2010	482.0	308.1	34.2	97.5	23.5	0.3	5.6	4.2	4.0	3.0	1.2	0.5
45–64 yrs												
2008	410.8	267.1	48.2	66.6	12.5	3.4	3.8	3.7	3.2	1.9	0.3	0.3
2009	451.0	296.9	50.9	71.2	14.8	3.7	3.9	3.5	3.2	2.0	0.3	0.7
2010	483.0	318.1	52.6	77.1	17.6	4.0	3.8	4.5	3.1	2.0	0.3	0.3
≥65 yrs												
2008	840.4	308.2	321.0	34.0	3.2	158.5	2.2	6.5	1.4	4.6	0.0	0.6
2009	865.3	324.0	336.1	34.1	4.0	152.5	2.2	6.0	1.6	3.7	0.1	1.1
2010	905.8	344.1	355.7	35.4	5.4	150.5	2.3	8.0	1.6	3.8	0.1	0.3

* Per 10,000 population.
† Diagnostic category for each MHD-related ED visit based on the category of the first-listed MHD *International Classification of Diseases, Ninth Revision, Clinical Modification* code.

Good mental health services require a system of care that includes EDs, hospitals, and ambulatory-care clinics that are adequately resourced. If the trends reported in this study continue to escalate, EDs, hospitals, and (most importantly) patients will be further burdened. The high numbers of ED visits and hospital admissions for patients with any type of MHD-DCs, for those aged ≥65 years (especially with dementia), and for those with low-acuity MHDs, indicate a need for system adjustment. Strategies are needed to counteract the effects of inpatient bed shortages and the increased volume of MHD-DC-related visits to EDs. Surveillance is the first step, because identifying trends in ED use by patients with MHDs can guide policies and procedures designed to reduce hospitalization, improve access to ambulatory care services, and develop new ways to care for the elderly with MHDs in the ED.

The findings in this report are subject to at least four limitations. First, ED visit data in NC DETECT are secondary data from hospital administrative and clinical data sources; diagnostic codes typically are extrapolated by hospital coders from the patient record. Second, the percentage of ED visits identified as having associated MHD-DCs probably is an underestimate; other coding studies have reported underestimation of medical disorders when relying solely on diagnostic codes. Third, some types of ED visits by patients with MHDs, such as visits attributed to involuntary commitment or those initiated by law enforcement, likely would not be prevented by better outpatient access. Finally, coder training and experience, clinician documentation, and billing practices affect diagnosis coding for all types of medical conditions (*9*). For this study, MHD-DCs were categorized into clinically coherent groups

What is already known on this topic?

The number of emergency department (ED) visits associated with mental health disorders (MHDs) is increasing in the United States. Patients with mental health disorders (MHDs) use the emergency department (ED) for acute psychiatric emergencies, for injuries and illnesses complicated by or related to their MHD, or when psychiatric or primary-care options are inaccessible or unavailable. EDs are an important part of the overall system providing health care for patients with MHDs.

What is added by this report?

In North Carolina during 2008–2010, 8.8% of ED visits were assigned at least one MHD diagnosis code (MHD-DC) among 11 possible, with a 2010 rate of 430 MHD-DC-related ED visits per 10,000 population. The rate of MHD-DC-related ED visits increased by 14.4%, whereas the rate of all ED visits increased by 2.1%, and the proportion of MHD-DC-related ED visits resulting in hospital admission was 2.3 times greater than that for all ED visits. Persons aged ≥65 years with MHD-DC-related diagnoses had the highest ED visit and admission rate of any age group.

What are the implications for public health practice?

The increasing numbers and rates of ED visits by patients with MHDs, especially the elderly, indicate a growing burden on the health-care delivery system. Standardized surveillance is needed to identify trends in ED use and the impact of any interventions.

by clinicians on the study team. A study reviewing ED visits for MHDs in New South Wales, Australia, using a similar classification methodology, resulted in almost identical ICD-9-CM categorization and frequencies of disorders (*10*).

Additional information about NC DETECT and ED visit data for North Carolina is available at http://www.ncdetect.org.

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Influenza Activity — United States, 2012–13 Season and Composition of the 2013–14 Influenza Vaccine

During the 2012–13 influenza season in the United States, influenza activity* increased through November and December before peaking in late December. Influenza A (H3N2) viruses predominated overall, but influenza B viruses and, to a lesser extent, influenza A (H1N1)pdm09 (pH1N1) viruses also were reported in the United States. This influenza season was moderately severe, with a higher percentage of outpatient visits for influenza-like illness (ILI), higher rates of hospitalization, and more reported deaths attributed to pneumonia and influenza compared with recent years. This report summarizes influenza activity in the United States during the 2012–13 influenza season (September 30, 2012–May 18, 2013) as of June 7, 2013, and reports the recommendations for the components of the 2013–14 Northern Hemisphere influenza vaccine.

Viral Surveillance

During September 30, 2012–May 18, 2013, World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories in the United States tested 311,333 specimens for influenza viruses; 73,130 (23%) were positive (Figure 1). Of the positive specimens, 51,675 (71%) were influenza A viruses, and 21,455 (29%) were influenza B viruses. Among the seasonal influenza A viruses, 34,922 (68%) were subtyped; 33,423 (96%) were influenza A (H3N2) viruses, and 1,497 (4%) were pH1N1 viruses. In addition, two variant influenza A (H3N2v) viruses were identified.†

Typically the influenza season is said to begin when certain key indicators remain elevated for a number of consecutive weeks. One of these indicators is the percent of respiratory specimens testing positive for influenza. The proportion of specimens testing positive for influenza during the 2012–13 season first exceeded 10% during the week ending November 10, 2012 (week 45), and peaked at 38% during the week ending December 29, 2012 (week 52).

Since the start of the 2012–13 season, influenza A (H3N2) viruses have predominated nationally, followed by influenza B viruses; pH1N1 viruses have been identified less frequently. The relative proportion of each type and subtype varied by geographic U.S. Department of Health and Human Services region§ and week. Influenza A viruses predominated until the end of February, with influenza B viruses predominating from the week ending February 23, 2013 (week 8) through the week ending May 18, 2013 (week 20).

Regional differences were observed in the timing of influenza activity and the relative proportions of circulating viruses. Using the percentage of specimens testing positive for influenza to determine the peak of influenza activity, Region 4 activity peaked earliest, during the week ending December 8, 2012 (week 49), and Region 9 activity peaked latest, during the week ending January 26, 2013 (week 4). The highest proportion of influenza B viruses was observed in Region 6 (42%) and the lowest proportion of influenza B viruses was detected in Region 1 (15%).

Novel Influenza A Viruses

During the 2012–13 influenza season, one case of human infection with a variant influenza A (H3N2) (H3N2v) virus was reported in each of two states, Minnesota and Iowa. Both infections occurred in children, one with known exposure to swine. Both patients recovered fully.

Antigenic Characterization

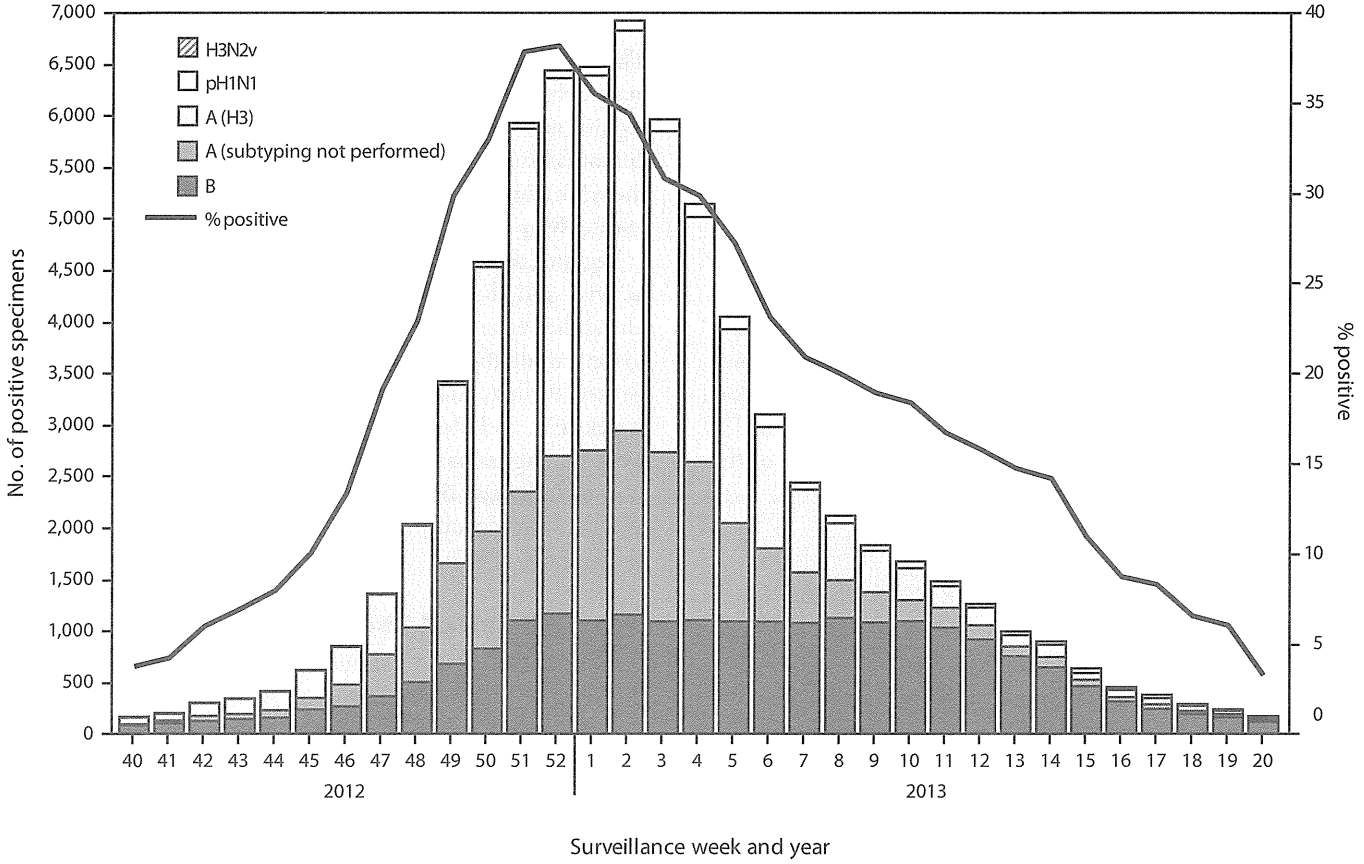
CDC has antigenically characterized 2,452 influenza viruses collected since October 1, 2012, and submitted by U.S. laboratories, including 252 pH1N1 viruses, 1,324 influenza A (H3N2) viruses, and 876 influenza B viruses. Of the 252 pH1N1 viruses tested, 249 (98.8%) were characterized as A/California/7/2009-like, the influenza A(H1N1) component of the 2012–13 influenza vaccine. Three viruses (1.2%) of the 252 tested showed reduced titers with ferret antiserum raised against A/California/7/2009. Of the 1,324 influenza A (H3N2) viruses, 1,319 (99.6%) were antigenically similar to the cell-propagated A/Victoria/361/2011 reference virus; most viruses tested were cell-propagated. The H3N2 vaccine component for the 2012–13 Northern Hemisphere season was egg-propagated A/Victoria/361/2011; the use of egg-propagated vaccine viruses is a current regulatory requirement for vaccine production. Five (0.4%) of the 1,324 tested showed reduced titers with antiserum produced against cell-propagated A/Victoria/361/2011.

* Additional information on influenza surveillance and reporting systems in the United States, methods, and levels of activity is available at http://www.cdc.gov/flu/weekly/overview.htm.

† Influenza viruses that normally circulate in pigs are called "variant" viruses when they are found in humans. Influenza A (H3N2) variant viruses ("H3N2v" viruses) with the matrix (M) gene from the 2009 H1N1 pandemic virus were first detected in humans in July 2011. Since then, 319 cases of H3N2v infection have been confirmed in humans, mostly associated with prolonged exposure to pigs at agricultural fairs.

§ Additional information available at http://www.hhs.gov/about/regionmap.html.

FIGURE 1. Number and percentage of respiratory specimens testing positive for influenza reported to CDC, by type and surveillance week and year — World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories, United States, September 30, 2012–May 18, 2013



Of the 876 influenza B viruses tested, 581 (66.3%) belonged to the B/Yamagata lineage, and were characterized as B/Wisconsin/1/2010-like, the influenza B component for the 2012–13 Northern Hemisphere influenza vaccine. A total of 295 (33.7%) viruses tested belonged to the B/Victoria lineage.

Resistance to Antiviral Medications

Since October 1, 2012, a total of 3,626 influenza virus specimens have been tested for antiviral resistance. All 961 influenza B viruses tested were sensitive to both oseltamivir and zanamivir. Among 2,123 influenza A (H3N2) viruses tested, one (0.05%) was found to be resistant to oseltamivir alone and one (0.05%) to both oseltamavir and zanamivir. Among the 542 pH1N1 viruses tested for resistance to oseltamivir, two (0.4%) were resistant, and all of the 258 viruses tested for resistance to zanamivir were sensitive. High levels of resistance to the adamantanes (amantadine and rimantadine) persist among influenza A viruses currently circulating globally (the adamantanes are not effective against influenza B viruses).

Composition of the 2013–14 Influenza Vaccine

The Food and Drug Administration's Vaccines and Related Biological Products Advisory Committee has recommended that the 2013–14 influenza trivalent vaccines used in the United States contain an A/California/7/2009(H1N1) pdm09-like virus, an A(H3N2) virus antigenically like the cell-propagated A/Victoria/361/2011 virus (A/Texas/50/2012), and a B/Massachusetts/2/2012-like (B/Yamagata lineage) virus. A/Texas/50/2012 is an egg-propagated A(H3N2) virus antigenically similar to cell-propagated A/Victoria/361/2011. The committee recommended that A/Texas/50/2012 be used as the H3N2 vaccine component because of antigenic changes in A/Victoria/361/2011 vaccine virus resulting from mutations acquired during growth in eggs. The committee also recommended that quadrivalent vaccines contain a B/Brisbane/60/2008-like (B/Victoria lineage) virus (*1*). These recommendations were based on global influenza virus surveillance data related to epidemiology, antigenic and genetic characteristics, and serological responses to 2012–13 seasonal vaccines, and the availability of candidate strains and reagents.

Outpatient Illness Surveillance

Nationally, the weekly percentage of outpatient visits for ILI[¶] to health-care providers participating in the U.S. Outpatient Influenza-Like Illness Surveillance Network (ILINet) exceeded the national baseline level of 2.2% for 15 weeks during the 2012–13 influenza season (Figure 2). The peak percentage of outpatient visits for ILI was 6.1%, and occurred in the week ending December 29, 2012 (week 52). In contrast, the peak percentage of outpatient visits for ILI during the previous influenza season (2011–12) was 2.4% and occurred in mid-March. During the 2007–08 and 2010–11 influenza seasons, both of which had influenza A (H3N2) virus as the predominant circulating virus, the peak percentage of outpatient visits for ILI was 6.0% and 4.6%, respectively; both peaks occurred in mid-February. During the 2012–13 season, on a regional level, the percentage of visits for ILI exceeded region-specific baselines in all 10 regions. ILINet data are used to produce a weekly state-level measure of ILI activity varying from minimal to high: the number of states experiencing high ILI activity peaked during the week ending December 29, 2012 (week 52) with 35 states.

State-Specific Activity Levels

State and territorial epidemiologists report the geographic distribution of influenza in their states through a weekly influenza activity code. The geographic distribution of influenza activity was most extensive during the week ending January 12, 2013 (week 2), when 48 states reported widespread influenza activity and two states reported regional influenza activity. The week ending May 18, 2013 (week 20) was the first week no state or territory reported regional or widespread influenza activity. The number of states reporting widespread or regional activity during the peak week of activity has ranged from 20 to 50 states during the previous four influenza seasons (Influenza Division, CDC, unpublished data, 2013).

Influenza-Associated Hospitalization

CDC monitors hospitalizations associated with laboratory-confirmed influenza virus infections using the FluSurv-NET** surveillance system. Cumulative hospitalization rates (per 100,000 population) were calculated by age group based on 12,337 total hospitalizations resulting from influenza during October 1, 2012–April 30, 2013. Among 12,293 cases with influenza type specified, 9,767 (79.2%) were associated with influenza A and 2,492 (20.2%) with influenza B; and 34 (0.3%) were associated with influenza A and influenza B co-infections; 44 (0.4%) had no virus type information available. Persons aged ≥65 years accounted for approximately 50% of reported cases. The cumulative incidence[††] for all age groups since October 1, 2012, was 44.3 per 100,000 (Figure 3). The cumulative hospitalization rate (per 100,000 population) by age group for this period was 66.2 (0–4 years), 14.5 (5–17 years), 16.4 (18–49 years), 41.2 (50–64 years), and 191.2 (≥65 years). During the past four influenza seasons, age-specific hospitalization rates ranged from 15.8 to 72.8 (0–4 years), 4.0 to 27.3 (5–17 years), 3.6 to 23.1 (18–49 years), 5.1 to 30.8 (50–64 years), and 13.5 to 65.9 (≥65 years).

What is already known on this topic?

CDC collects, compiles, and analyzes data on influenza activity year-round in the United States. The influenza season generally begins in the fall and continues through the winter and spring months; however, the timing and severity of influenza activity varies by geographic location and season.

What is added by this report?

During the 2012–13 influenza season, influenza A (H3N2), influenza A (H1N1)pdm09, and influenza B viruses cocirculated. In addition, two cases of infection with variant influenza A viruses were reported in the United States. Compared with recent influenza seasons, this season had a higher percentage of outpatient visits for influenza-like illness, higher rates of hospitalizations, and more deaths attributed to pneumonia and influenza.

What are the implications for public health practice?

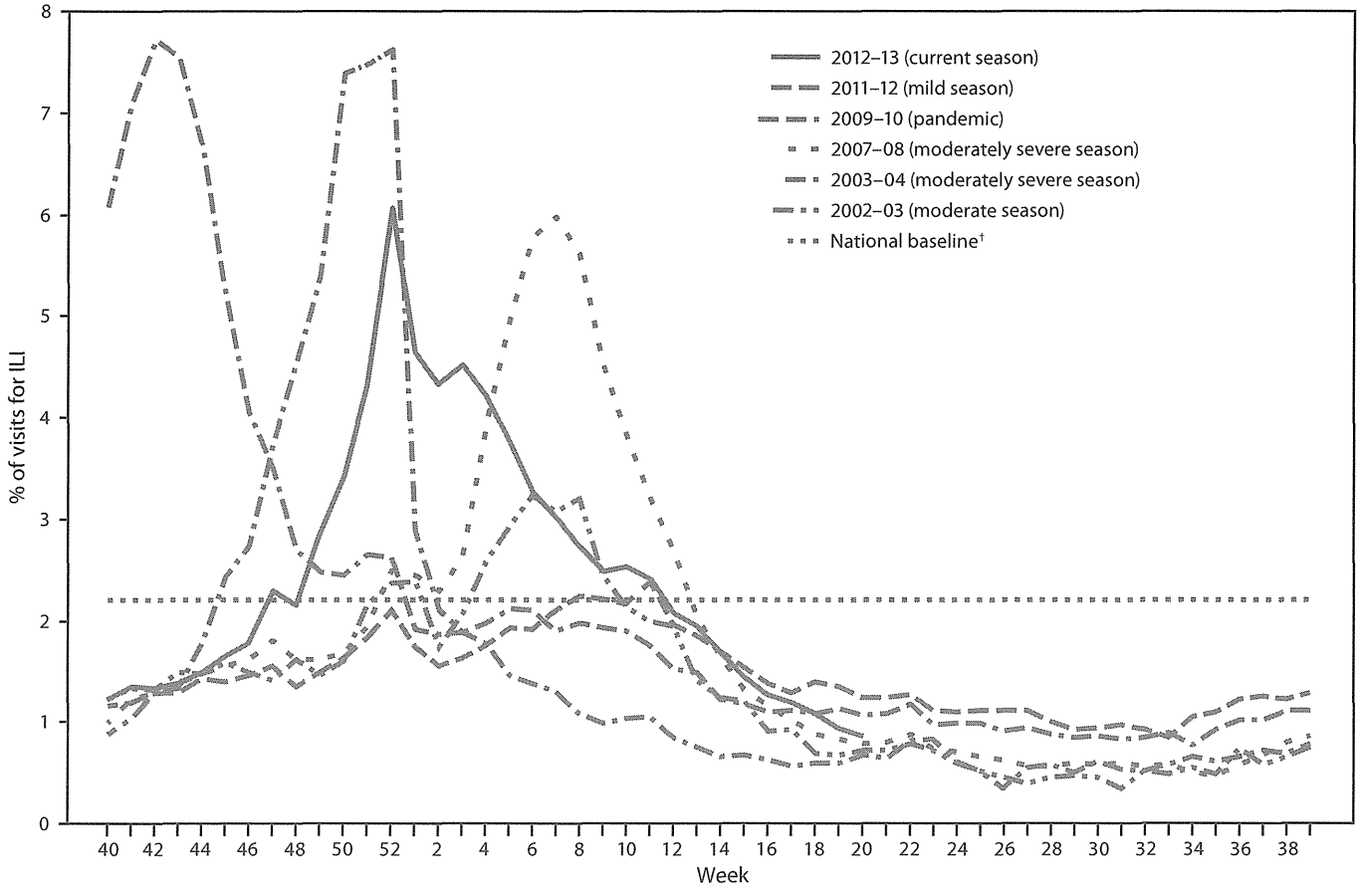
All unvaccinated persons aged ≥6 months should be offered influenza vaccine throughout the influenza season. In addition, timely empiric antiviral treatment is recommended for patients with severe, complicated, or progressive influenza illness; those at higher risk for influenza complications; or those for whom treatment can be started within 48 hours of illness onset. In addition, influenza surveillance, including for novel influenza viruses, should continue through the summer months, and physicians should consider influenza as a cause of respiratory illness outside of the typical season.

[¶] Defined as a temperature of ≥100.0°F (≥37.8°C), oral or equivalent, and cough or sore throat, in the absence of a known cause other than influenza.

** FluSurv-NET covers approximately 80 counties in the 10 Emerging Infections Program states (California, Colorado, Connecticut, Georgia, Maryland, Minnesota, New Mexico, New York, Oregon, and Tennessee) and additional Influenza Hospitalization Surveillance Project (IHSP) states. IHSP began during the 2009–10 season to enhance surveillance during the 2009 H1N1 pandemic. IHSP sites included Iowa, Idaho, Michigan, Oklahoma, and South Dakota during 2009–10 season; Idaho, Michigan, Ohio, Oklahoma, Rhode Island, and Utah during the 2010–11 season; Michigan, Ohio, Rhode Island, and Utah during the 2011–12 season; and Iowa, Michigan, Ohio, Rhode Island, and Utah during the 2012–13 season.

[††] Incidence rates are calculated using population estimates for the counties included in the surveillance catchment area. Laboratory confirmation is dependent on clinician-ordered influenza testing, and testing for influenza often is underused because of the poor reliability of rapid test results and greater reliance on clinical diagnosis for influenza. As a consequence, cases identified as part of influenza hospitalization surveillance likely are an underestimation of the actual number of persons hospitalized with influenza.

FIGURE 2. Percentage of visits for influenza-like illness (ILI)* reported to CDC, by surveillance week and year — U.S. Outpatient Influenza-Like Illness Surveillance Network, United States, September 30, 2012–May 18, 2013, and selected previous seasons



* Defined as a temperature of ≥100.0°F (≥37.8°C), oral or equivalent, and cough or sore throat, in the absence of a known cause other than influenza.

† The national baseline is the mean percentage of visits for ILI during noninfluenza weeks for the previous three seasons plus two standard deviations. A noninfluenza week is defined as periods of two or more consecutive weeks in which each week accounted for <2% of the season's total number of specimens that tested positive for influenza. Use of the national baseline for regional data is not appropriate.

As of June 1, 2013, among the FluSurv-NET adult patients for whom medical chart data were available, the most frequent underlying conditions were chronic lung disease (27%), cardiovascular disease (45%), and metabolic disorders (39%). Among children hospitalized with laboratory-confirmed influenza and for whom medical chart data were available, 46% did not have any recorded underlying conditions, and 22% had underlying asthma or reactive airway disease. Among the 819 hospitalized women of childbearing age (15–44 years), 233 (28%) were pregnant.

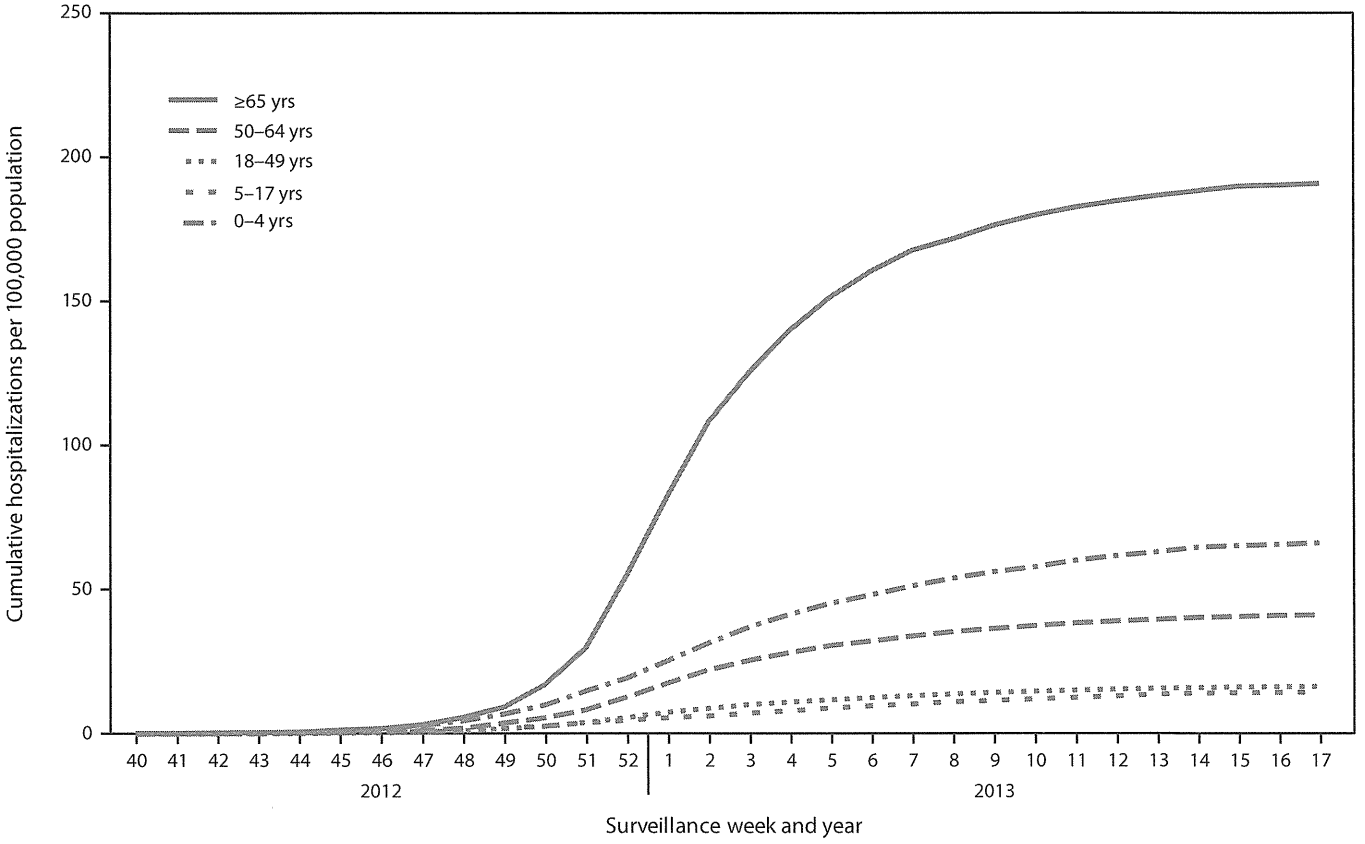
Pneumonia- and Influenza-Related Mortality

During the 2012–13 influenza season, the percentage of deaths attributed to pneumonia and influenza (P&I) exceeded the epidemic threshold for 13 consecutive weeks spanning December 30, 2012 to March 30, 2013 (weeks 1–13). The percentage of deaths attributed to P&I peaked at 9.9% during the week ending January 19, 2013 (week 3) (Figure 4). From the 2008–09 season through the 2011–12 season, the peak percentage of P&I deaths ranged from 7.9% to 9.1%, and the total number of consecutive weeks at or above the epidemic threshold ranged from 1 to 13 (Influenza Division, CDC, unpublished data, 2013).

Influenza-Related Pediatric Mortality

For the 2012–13 influenza season, 149 laboratory-confirmed, influenza-associated pediatric deaths were reported. These deaths were reported from 38 states. The states with the greatest numbers of deaths were Texas (18), New York (14), and Florida (eight). The deaths included 11 children aged <6 months, 20 aged 6–23 months, 20 aged 2–4 years, 52 aged 5–11 years, and 46 aged 12–17 years; mean and median ages were 8.2 years and 8.1 years, respectively. Among the 149 deaths, 79 were associated with influenza B viruses,

FIGURE 3. Cumulative hospitalization rates for laboratory-confirmed influenza, by age group and surveillance week and year — FluSurv-NET* surveillance system, United States, October 1, 2012–April 30, 2013



32 with influenza A (H3) viruses, four with pH1N1 viruses, 31 with an influenza A virus for which the subtype was not determined, one with an influenza virus for which the type was not determined, and two with both an influenza B and influenza A virus.

Since influenza-associated pediatric mortality became a nationally notifiable condition in 2004, the total number of influenza-associated pediatric deaths has previously ranged from 34 to 123 per season; this excludes the 2009 pandemic, when 348 pediatric deaths were reported to CDC during April 15, 2009, through October 2, 2010.

Reported by

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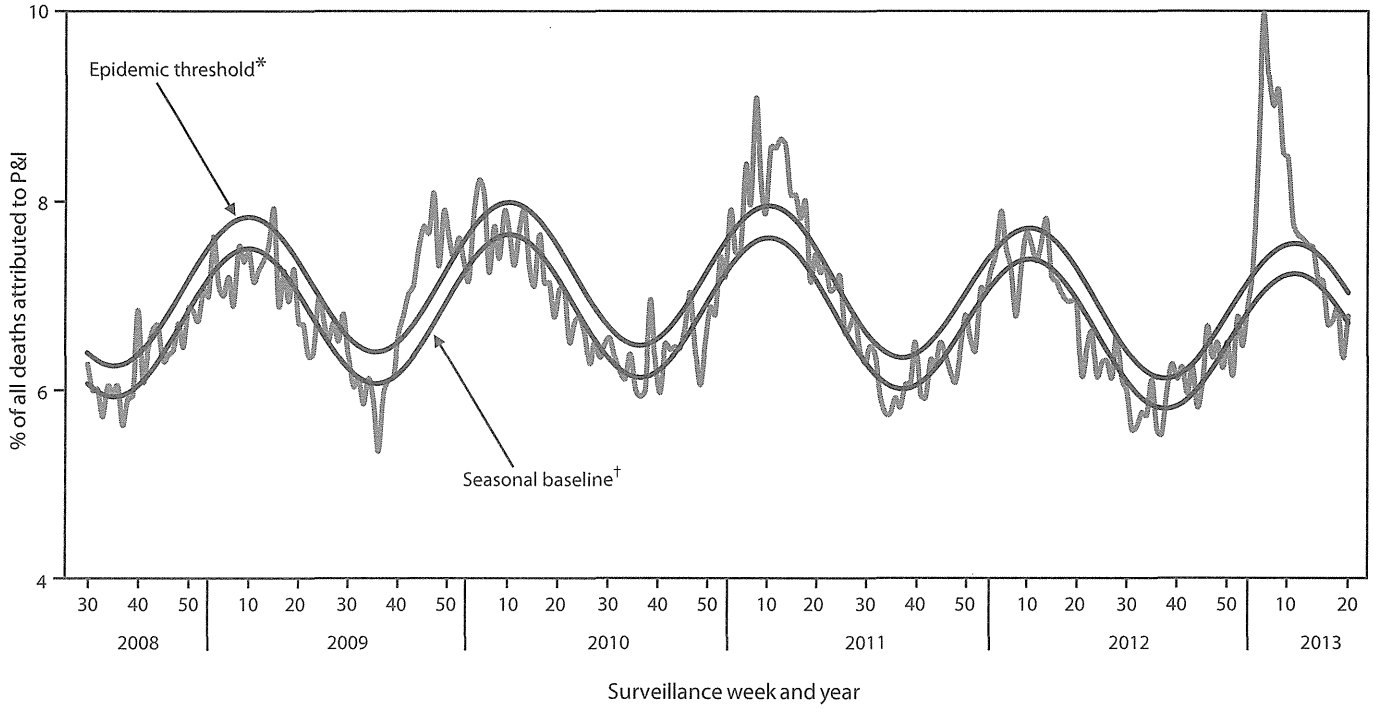
Editorial Note

The 2012–13 influenza season peaked early and was a moderately severe season, with influenza A (H3N2) viruses predominating. Activity peaked in late December, and influenza A (H3N2) viruses were most commonly reported through the week ending February 16, 2013 (week 7). From the week ending February 23, 2013 (week 8), through the end of the season, influenza B viruses were more commonly reported. The majority of all influenza viruses in specimens sent to CDC for further antigenic characterization were similar to the components of the 2012–13 Northern Hemisphere vaccine.

The peak percentage of outpatient visits for ILI (6.1%) was one of the highest reported since the system began in its current format in 1997. For comparison, the peak percentage of visits for ILI during those 15 seasons ranged from 2.4% for the 2011–12 season to 7.7% during the 2009 H1N1 pandemic. The number and rate of influenza-associated hospitalizations

FIGURE 4. Percentage of all deaths attributable to pneumonia and influenza (P&I), by surveillance week and year — 122 Cities Mortality Reporting System, United States, 2008–May 18, 2013



* The epidemic threshold is 1.645 standard deviations above the seasonal baseline.
† The seasonal baseline is projected using a robust regression procedure that applies a periodic regression model to the observed percentage of deaths from P&I during the preceding 5 years.

among adults aged ≥65 years during the 2012–13 influenza season are the highest since systematic data collection on laboratory-confirmed, influenza-associated hospitalization in adults began in the 2005–06 season. Hospitalization rates for those aged ≥65 years were 191 per 100,000 population, two and a half times the highest rate previously reported for this age group. With the exception of the 2009 H1N1 pandemic, the number of influenza-associated pediatric deaths reported to CDC for the 2012–13 season was the highest reported since data collection began in 2004. Reported P&I mortality exceeded the epidemic threshold for 13 consecutive weeks. Based on the percentage of specimens testing positive for influenza, the peak of influenza activity for the 2012–13 season, occurring during the week ending December 29, 2012 (week 52), was similar to the 2003–04 season, which peaked during the week ending November 30, 2003 (week 48), and was the earliest since the 2009 H1N1 pandemic, when activity peaked during the week ending October 24, 2009 (week 42).

On March 31, 2013, Chinese health authorities reported a novel avian influenza A (H7N9) virus causing human infection. As of June 7, 2013, 132 cases have been confirmed; many of the infected people are reported to have had close contact with poultry. The virus has only been seen in mainland China and Taiwan; no cases have been reported in the United States. Unlike the variant influenza A (H3N2)v virus associated with swine exposure in the United States, which generally caused mild illness, the avian influenza A (H7N9) virus has caused severe illness in the majority of cases in humans, and approximately 27% of identified cases have been fatal (*2*).

Testing for seasonal influenza viruses and monitoring for novel influenza A virus infections should continue year-round, as should specimen submission to CDC for further antigenic and genetic analysis and antiviral resistance monitoring. A total of 308 infections with variant influenza viruses (304 H3N2v viruses, three H1N2v viruses, and one H1N1v virus) were reported from 10 states during the summer and fall of 2012, before the start of the 2012–13 influenza season, and two cases of H3N2v were detected during the 2012–13 season. The H3N2v virus circulated in pigs in 2010 and was first detected in humans in 2011, when 12 cases were identified. Most of these infections occurred in children with prolonged exposure to pigs at agricultural fairs. Limited human-to-human spread of this virus was detected, but no sustained community spread of H3N2v was identified (*3*). However, this increase in H3N2v cases in 2012,

and the recent emergence of the novel avian influenza A (H7N9) virus in China, further emphasizes the importance of continuing to monitor for novel influenza A viruses.

Although summer influenza activity in the United States typically is low, cases of influenza and even sporadic outbreaks are detected in the United States throughout the summer. Health-care providers should remain vigilant and consider influenza as a potential cause of summer respiratory illnesses. They also should consider novel influenza viruses in persons with ILI and swine exposure, and those with severe acute respiratory infection after travel to China. Public health laboratories should immediately send to CDC virus specimens that they cannot type or subtype using standard methods and submit all specimens that are otherwise unusual, including all summer specimens, as soon as possible after identification.

Since 2010, CDC has recommended annual influenza vaccination for all persons aged ≥6 months, preferably in the fall before the U.S. influenza season begins (*4*). However, during other times of the year, persons who have not received the vaccine for the current season should be vaccinated before traveling to parts of the world where influenza activity is ongoing. This is particularly important for persons at high risk for influenza-related complications.[§§] This recommendation also applies to persons traveling within the temperate regions of the Southern Hemisphere or as part of large tourist groups (e.g., on cruise ships) that might include persons from other parts of the world where influenza activity is ongoing (*5*). Persons should be vaccinated at least 2 weeks before travel for immunity to develop. Travelers also should be aware that all Northern Hemisphere influenza vaccine manufactured for the 2012–13 season expires by June 30, 2013, after which influenza vaccines will not be available in the United States until the 2013–14 vaccine is available in the fall.

As a supplement to vaccination, influenza antiviral drugs are an important adjunct to reduce the impact of influenza. Based on recommendations of the Advisory Committee on Immunization Practices, antiviral treatment is recommended as soon as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness; who require hospitalization; or who are at higher risk for influenza-related complications (*6*). Antiviral treatment also may be considered for outpatients with confirmed or suspected influenza who do not have known risk factors for severe illness if treatment can be initiated within 48 hours of illness onset. In addition, if a clinician does suspect that a patient might have an infection caused by a novel influenza virus, prompt empiric antiviral therapy is recommended. Recommended antiviral medications include oseltamivir and zanamivir. Recent viral surveillance and resistance data indicate that the majority of currently circulating influenza viruses are sensitive to these medications. Amantadine and rimantadine should not be used because of sustained high levels of resistance to these drugs among circulating influenza A viruses.

[§§] Additional information available at http://www.cdc.gov/flu/about/disease/high_risk.htm.

Acknowledgments

Participating state, city, county, and territorial health departments and public health laboratories; US World Health Organization collaborating laboratories; National Respiratory and Enteric Virus Surveillance System collaborating laboratories; US Outpatient Influenza-Like Illness Surveillance Network; Influenza Hospitalization Surveillance Network; Influenza-Associated Pediatric Mortality Surveillance System; 122 Cities Mortality Reporting System.

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Update: Severe Respiratory Illness Associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV) — Worldwide, 2012–2013

On June 7, 2013, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

CDC continues to work in consultation with the World Health Organization (WHO) and other partners to better understand the public health risk posed by the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), formerly known as novel coronavirus, which was first reported to cause human infection in September 2012 (*1–4*). The continued reporting of new cases indicates that there is an ongoing risk for transmission to humans in the area of the Arabian Peninsula. New reports of cases outside the region raise concerns about importation to other geographic areas. Nosocomial outbreaks with transmission to health-care personnel highlight the importance of infection control procedures. Recent data suggest that mild respiratory illness might be part of the clinical spectrum of MERS-CoV infection, and presentations might not initially include respiratory symptoms. In addition, patients with comorbidities or immunosuppression might be at increased risk for infection, severe disease, or both. Importantly, the incubation period might be longer than previously estimated. Finally, lower respiratory tract specimens (e.g., sputum, bronchoalveolar lavage, bronchial wash, or tracheal aspirate) should be collected in addition to nasopharyngeal sampling for evaluation of patients under investigation. An Emergency Use Authorization (EUA) was recently issued by the Food and Drug Administration (FDA) to allow for expanded availability of diagnostic testing in the United States.

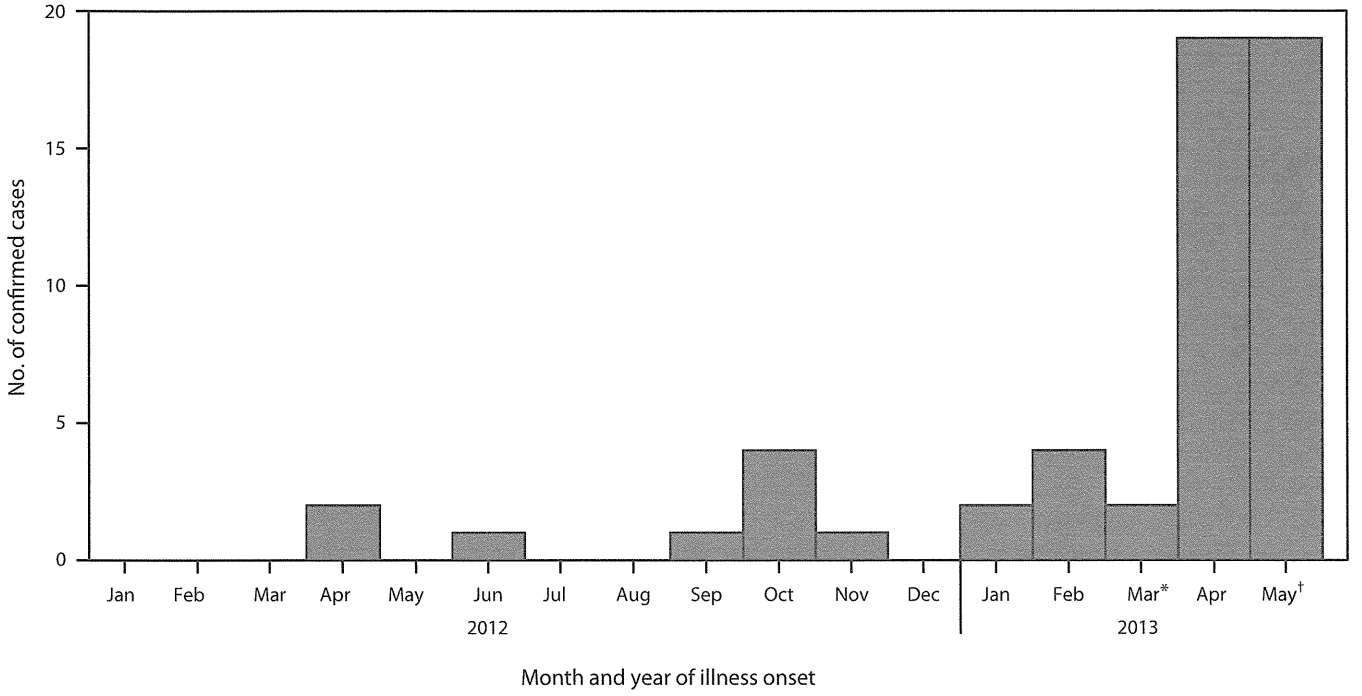
As of June 7, 2013, a total of 55 laboratory-confirmed cases have been reported to WHO. Illness onsets have occurred during April 2012 through May 29, 2013 (Figure 1). All reported cases were directly or indirectly linked to one of four countries: Saudi Arabia, Qatar, Jordan, and the United Arab Emirates (Figure 2). Most cases (40) were reported by Saudi Arabia. Four countries, the United Kingdom (UK), Italy, France, and Tunisia, have reported cases in returning travelers and their close contacts (*5–8*). Ill patients from Qatar and the United Arab Emirates have been transferred to hospitals in the UK and Germany. To date, no cases have been reported in the United States. WHO and CDC have not issued any travel advisories at this time; updated information for travelers to the Arabian Peninsula is available at http://wwwnc.cdc.gov/travel/notices/watch/coronavirus-arabian-peninsula.

The median age of patients is 56 years (range: 2–94 years), with a male-to-female ratio of 2.6 to 1.0. All patients were aged ≥24 years, except for two children, one aged 2 years and one aged 14 years. All patients had respiratory symptoms during their illness, with the majority experiencing severe acute respiratory disease requiring hospitalization. Thirty-one of the 55 patients are reported to have died (case-fatality rate: 56%) (*5–8*). Two cases in Tunisia, in siblings whose father's illness was a probable case, and a case from the UK, were in persons with mild respiratory illnesses who were not hospitalized (*5,9*). Information was not available for all cases; however, several patients had accompanying gastrointestinal symptoms, including abdominal pain and diarrhea, and many cases occurred among persons with chronic underlying medical conditions or immunosuppression, as reported to WHO (*5,9*).

The original source(s), route(s) of transmission to humans, and the mode(s) of human-to-human transmission have not been determined. Eight clusters (42 cases) have been reported by six countries (France, Italy, Jordan, Saudi Arabia, Tunisia, and the UK) (*5*) among close contacts or in health-care settings and provide clear evidence of human-to-human transmission of MERS-CoV. The first documented patient-to-patient nosocomial transmission in Europe was confirmed recently in France (*10*). The first French patient, a man aged 64 years with a history of renal transplantation, became ill on April 22, 2013, within 1 week after returning from Dubai. He presented with fever and diarrhea. Pneumonia was diagnosed incidentally on radiographic imaging, and he subsequently died with severe respiratory disease. The secondary case is in a man aged 51 years on long-term corticosteroids who shared a room with the index patient during April 26–29 and who remains hospitalized on life support. The incubation period for the secondary case was estimated to be 9–12 days; this is longer than the previously estimated 1–9 days (*10*). A larger cluster, consisting of 25 cases including 14 deaths, ongoing since April 2013 in the region of Al-Ahsa in eastern Saudi Arabia, also has included cases linked to a health-care facility (*5*). Cases have included health-care personnel and family contacts. An additional five cases, not linked to the cluster in Al-Ahsa, were reported recently in another region of eastern Saudi Arabia (*5*). Thus far, no evidence of sustained community transmission beyond the clusters has been reported in any country.

In some instances, sampling with nasopharyngeal swabs did not detect MERS-CoV by polymerase chain reaction (PCR); however, MERS-CoV was detected by PCR in lower respiratory tract specimens from these same patients. In the two patients reported by France, nasopharyngeal specimens were weakly positive or inconclusive, whereas bronchoalveolar lavage and induced sputum were positive (*10*).

FIGURE 1. Number of confirmed cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) (N = 55) reported as of June 7, 2013, to the World Health Organization, by month of illness onset — worldwide, 2012–2013



* Case count for March assumes that the two cases included in the March 23, 2013 WHO announcement had symptom onset during March 2013.
† Case count for May 2013 assumes that six recently reported cases had symptom onset during May 2013.

CDC Guidance

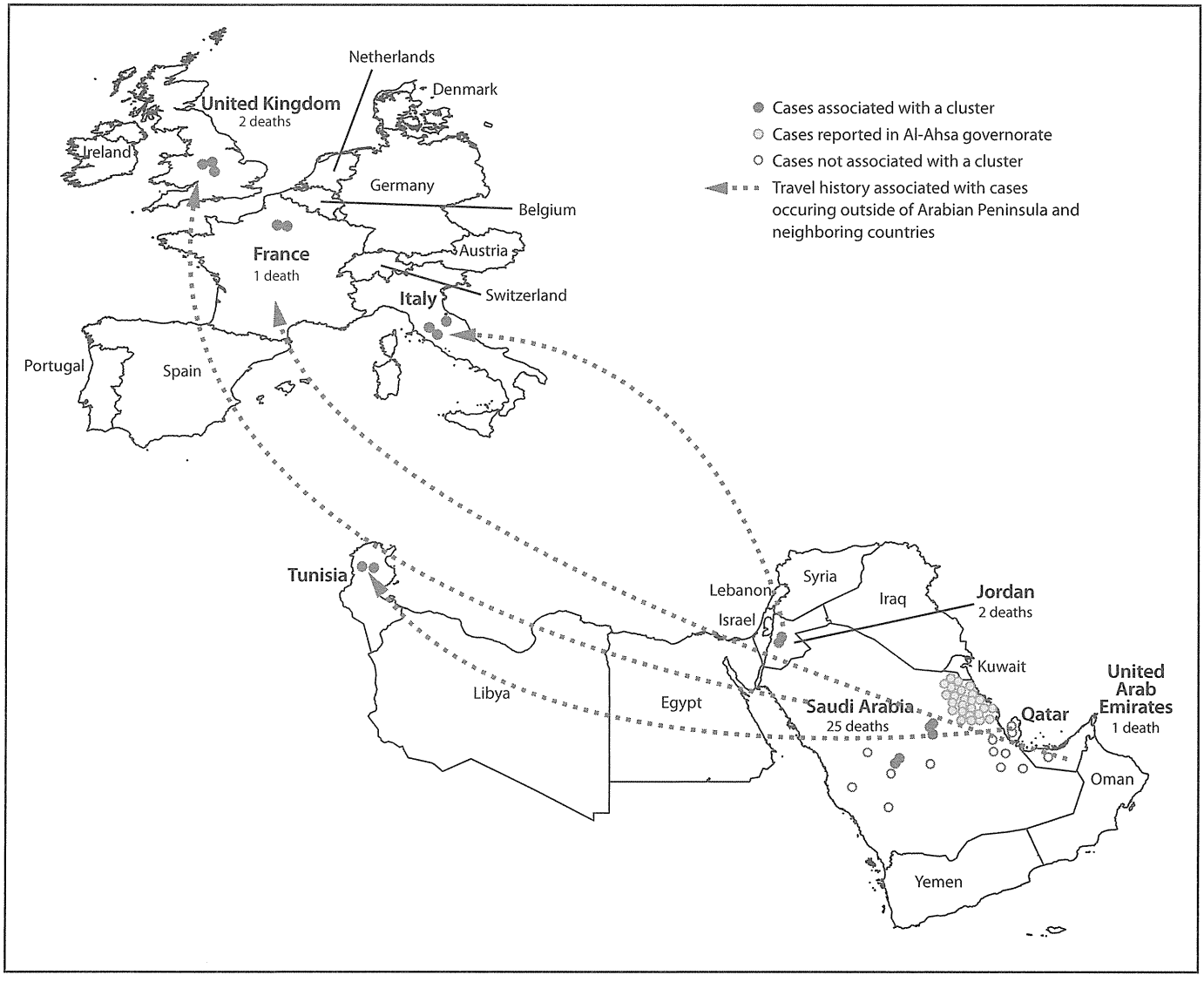
In consultation with WHO, the period for considering evaluation for MERS-CoV infection in persons who develop severe acute lower respiratory illness days after traveling from the Arabian Peninsula or neighboring countries* has been extended from within 10 days to within 14 days of travel. Persons who develop severe acute lower respiratory illness within 14 days after traveling from the Arabian Peninsula or neighboring countries should be evaluated according to current guidelines (available at http://www.cdc.gov/coronavirus/mers/case-def.html). Persons whose respiratory illness remains unexplained and who meet criteria for "patient under investigation" should be reported immediately to CDC through state and local health departments. Persons who develop severe acute lower respiratory illness who are close contacts† of a symptomatic traveler who developed fever and acute respiratory illness within 14 days of traveling from the Arabian Peninsula or neighboring countries may be considered for evaluation for MERS-CoV. In addition, CDC recommends that clusters of severe acute respiratory illness be investigated and, if no obvious etiology is identified, local public health officials be notified and testing for MERS-CoV conducted, if indicated.

To increase the likelihood of detecting MERS-CoV, CDC recommends collection of specimens from different sites (e.g., a nasopharyngeal swab and a lower respiratory tract specimen, such as sputum, bronchoalveolar lavage, bronchial wash, or tracheal aspirate). Specimens should be collected at different times after symptom onset, if possible. Lower respiratory tract specimens should be a priority for collection and PCR testing; stool specimens also may be collected. Specimens should be collected with appropriate infection control precautions (available at http://www.cdc.gov/coronavirus/mers/case-def.html).

Testing of specimens for MERS-CoV currently is being conducted at CDC. FDA issued an EUA on June 5, 2013, to authorize use of CDC's novel coronavirus 2012 real-time reverse transcription–PCR assay (NCV-2-12 rRT-PCR assay) to test for MERS-CoV in clinical respiratory, blood, and stool specimens. This EUA is needed because, at this time, there are no FDA-approved tests that identify MERS-CoV in clinical specimens. This assay will be deployed to Laboratory Response

* Countries considered to be on or neighboring the Arabian Peninsula include Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates, and Yemen.
† Close contacts are defined as 1) persons who provided care for the patient, including health-care personnel and family members, or who had other similarly close physical contact, or 2) persons who stayed at the same place (e.g., lived with or visited) as the patient while the patient was ill.

FIGURE 2. Confirmed cases* of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) (N =55) reported as of June 7, 2013, to the World Health Organization, and history of travel from the Arabian Peninsula or neighboring countries within 14 days of illness onset — worldwide, 2012–2013



* Dots representing the cases are not geographically representative of the exact location of the residence of the patient.

Network (LRN) laboratories in all 50 states over the coming weeks. Updated information about laboratories with the capacity to conduct MERS testing with the NCV-2-12 rRT-PCR assay will be provided on CDC's MERS website (http://www.cdc.gov/coronavirus/mers/case-def.html).

In consultation with WHO, the definition of a probable case of MERS-CoV infection has been updated to also include persons with severe acute respiratory illness with no known etiology with an epidemiologic link to a confirmed case of MERS-CoV infection. Until the transmission characteristics of MERS-CoV are better understood, patients under investigation and probable and confirmed cases should be managed in health-care facilities using standard, contact, and airborne precautions. As information becomes available, these recommendations will be reevaluated and updated as needed.

Recommendations and guidance on case definitions, infection control (including use of personal protective equipment), case investigation, and specimen collection and testing, are available at the CDC MERS website (http://www.cdc.gov/coronavirus/mers/index.html). The MERS website contains the most current information and guidance, which is subject to change. State and local health departments with questions should contact the CDC Emergency Operations Center (770-488-7100).

Reported by

Div of Global Migration and Quarantine, Div of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases; Office for Emergency Preparedness and Response, National Institute of Occupational Safety and Health; Div of Global Health Protection (proposed), Center for Global Health; Div of Viral Diseases, National Center for Immunization and Respiratory Diseases; Paul A. Gastañaduy, MD, EIS Officer, CDC. ***Correspondence:*** *eocreport@cdc.gov, 770-488-7100.*

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Notes from the Field

Outbreak of Poliomyelitis — Somalia and Kenya, May 2013

On May 9, 2013, the Somalia Ministry of Health and the World Health Organization (WHO) reported a confirmed wild poliovirus type 1 (WPV1) case in a girl aged 32 months from Mogadishu (Banadir Region), with onset of acute flaccid paralysis (AFP) on April 18, 2013. Subsequently, eight additional WPV1 cases have been confirmed in Somalia, seven in Banadir Region and one in Bay Region. These are the first reported polio cases in Somalia since March 2007.

On May 16, 2013, the Kenya Ministry of Public Health and Sanitation and WHO reported a confirmed WPV1 case with onset on April 30, 2013, in a girl aged 4 months from the Dadaab refugee camps near the Somalia border. Four additional cases were confirmed in the camps. These are the first reported polio cases in Kenya since July 2011. All data are as of June 11, 2013.

Genetic sequence analysis of isolates from both countries indicates the isolates are closely related, with evidence of a single introduction of virus into the region and subsequent local transmission before detection. These viruses are both closely related to WPV1 currently circulating in West Africa.

In Somalia, a rapid response polio supplementary immunization activity (SIA) was conducted May 14–17 in all 16 districts of Banadir Region. A subsequent SIA was conducted May 26–29 in a larger geographic area of Somalia, and SIAs are planned for June, July, and August. In Kenya, the first SIA in the Dadaab refugee camps and the surrounding three districts was conducted May 27–30. Subsequent SIAs with increasing geographic coverage in Kenya are planned for June, July, and August. Preventive SIAs are being conducted in areas of Ethiopia and Yemen, and surveillance for AFP is being strengthened in all countries in the Horn of Africa.

Poliovirus is spread person-to-person through fecal-oral contact and through contaminated water. For every WPV1 case with paralysis, approximately 200 asymptomatic infected susceptible persons are also shedding poliovirus (*1*). In 2012, only 223 polio cases were reported globally, the fewest ever reported in a calendar year (*2*). As of June 11, a total of 50 polio cases had been reported in 2013 globally, compared with 67 cases reported during the same period in 2012 (*3*).

CDC recommends that all international travelers complete polio vaccination before travel. For travelers to countries with designated polio risk, including Ethiopia, Kenya, and Somalia, CDC recommends an additional polio vaccine booster dose (*4*). CDC has issued guidelines requiring that all refugees from Kenya scheduled for U.S. resettlement receive 3 doses of oral polio vaccine regardless of age before departure for the United States, with a 2-week hold after the third dose. CDC also recommends that all refugees from Kenya who have arrived since the beginning of April 2013 receive 1 inactivated poliovirus vaccine dose regardless of vaccination history.

Reported by

World Health Organization. Div of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Diseases; Div of Viral Diseases, National Center for Immunization and Respiratory Diseases; Global Immunization Div, Center for Global Health, CDC. ***Corresponding contributors:*** *Derek Ehrhardt, dehrhardt@cdc.gov, 404-310-5650; Nina Marano, nmarano@cdc.gov, 404-319-9618.*

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Announcement

Recommendations Regarding Tobacco Use and Secondhand Smoke Exposure from the Community Preventive Services Task Force

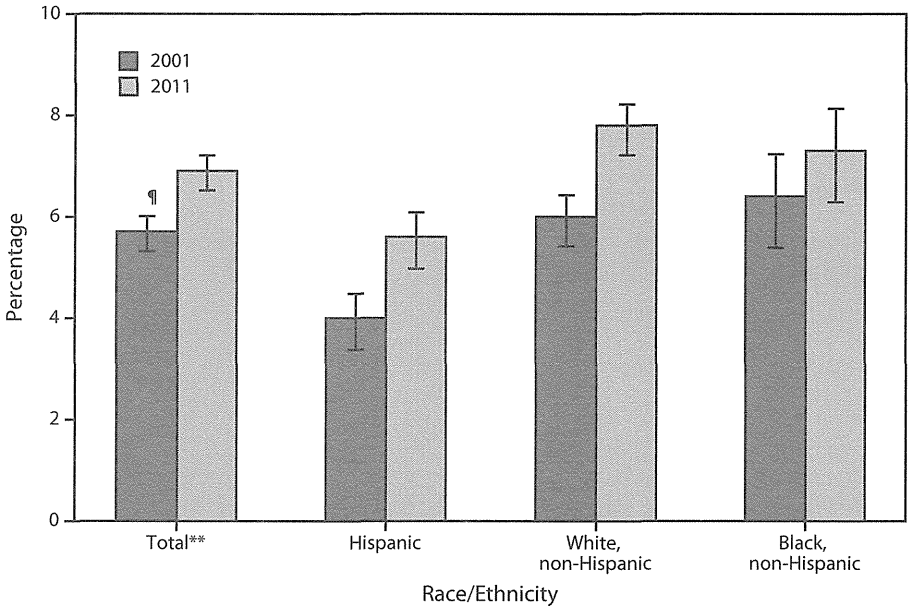
The Community Preventive Services Task Force recently posted new information about two recommendations: 1) "Reducing Tobacco Use and Secondhand Smoke Exposure: Reducing Out-of-Pocket Costs for Evidence-Based Tobacco Cessation Treatments," available at http://www.thecommunityguide.org/tobacco/outofpocketcosts.html, and 2) "Reducing Tobacco Use and Secondhand Smoke Exposure: Quitline Interventions," available at http://www.thecommunityguide.org/tobacco/quitlines.html.

Established in 1996 by the U.S. Department of Health and Human Services, the task force is an independent, nonfederal, unpaid panel of public health and prevention experts whose members are appointed by the Director of CDC. The task force provides information for a wide range of decision makers on programs, services, and policies aimed at improving population health. Although CDC provides administrative, research, and technical support for the task force, the recommendations developed are those of the task force and do not undergo review or approval by CDC.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Persons Aged <18 Years Who Received Special Educational or Early Intervention Services,* by Race/Ethnicity† — National Health Interview Survey, United States, 2001 and 2011§



* Based on response to the question, "Do any of the following [family members aged <18 years] receive special educational or early intervention services?" Special educational and early intervention services are designed to meet the needs of a child with special needs or disabilities and are provided by the state or school system at no cost to the parent. Early intervention services might include, but are not limited to, medical and social services, parental counseling, and therapy.

† Persons of Hispanic ethnicity might be of any race or combination of races.

§ Estimates are based on household interviews of a sample of the civilian noninstitutionalized U.S. population and are derived from the National Health Interview Survey Family Core component.

¶ 95% confidence interval.

** Includes other races not shown separately.

From 2001 to 2011, the percentage of children aged <18 years who were receiving special educational or early intervention services increased overall and among Hispanic and non-Hispanic white children, no change was observed among non-Hispanic black children. In 2001 and 2011, Hispanic children were less likely than non-Hispanic white and non-Hispanic black children to receive these services.

Sources: Barnes PM, Adams PF, Schiller JS. Summary health statistics for the U.S. population: National Health Interview Survey, 2001. Vital Health Stat 2003;10(217). Available at http://www.cdc.gov/nchs/data/series/sr_10/sr10_217.pdf.

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