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Recreational Water Illness and Injury Prevention Week — May 19–25

May 19–25, 2014, marks the 10th annual Recreational Water Illness and Injury Prevention Week. This observance highlights ways in which swimmers, parents, pool owners and operators, beach managers, and public health can maximize the health benefits of water-based physical activity, while avoiding water-associated illness and injury.

To help keep swimming a healthy and safe activity, CDC has recently published four reports on illness and injury risks associated with recreational water (e.g., pools and lakes) (*1–4*). CDC provides health and safety tips online to help swimmers, parents, and others prevent recreational water–associated illnesses (http://www.cdc.gov/healthywater/swimming/protection/triple-a-healthy-swimming.html); drownings (http://www.cdc.gov/homeandrecreationalsafety/water-safety/index.html); injury from pool chemicals (http://www.cdc.gov/healthywater/swimming/pools/preventing-pool-chemical-injuries.html); and exposure to harmful algal blooms (http://www.cdc.gov/healthcommunication/toolstemplates/entertainmented/tips/algalblooms.html).

CDC has also posted the second draft of the Model Aquatic Health Code (MAHC) (http://www.cdc.gov/mahc) for final public comment through May 27, 2014. MAHC guidelines for public treated recreational water venues (e.g., pools) are expected to be available this summer.

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Racial/Ethnic Disparities in Fatal Unintentional Drowning Among Persons Aged ≤29 Years — United States, 1999–2010

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In the United States, almost 4,000 persons die from drowning each year (*1*). Drowning is responsible for more deaths among children aged 1–4 years than any other cause except congenital anomalies (*2*). For persons aged ≤29 years, drowning is one of the top three causes of unintentional injury death (*2*). Previous research has identified racial/ethnic disparities in drowning rates (*3,4*). To describe these differences by age of decedent and drowning setting, CDC analyzed 12 years of combined mortality data from 1999–2010 for those aged ≤29 years. Among non-Hispanics, the overall drowning rate for American Indians/Alaska Natives (AI/AN) was twice the rate for whites, and the rate for blacks was 1.4 times the rate for whites. Disparities were greatest in swimming pools, with swimming pool drowning rates among blacks aged 5–19 years 5.5 times higher than those among whites in the same age

INSIDE

Continuing Education examination available at http://www.cdc.gov/mmwr/cme/conted_info.html#weekly.

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group. This disparity was greatest at ages 11–12 years; at these ages, blacks drown in swimming pools at 10 times the rate of whites. Drowning prevention strategies include using barriers (e.g., fencing) and life jackets, actively supervising or lifeguarding, teaching basic swimming skills and performing bystander cardiopulmonary resuscitation (CPR). The practicality and effectiveness of these strategies varies by setting; however, basic swimming skills can be beneficial across all settings.

Death certificate data for persons aged ≤29 years for 1999–2010 were obtained from the National Vital Statistics System* to identify persons who had died from unintentional drowning. Fatal unintentional drowning was defined as any death for which the underlying cause included any of the following codes from the *International Classification of Diseases, 10th Revision*: W65–W74, V90, or V92. By international standards, boating-related drowning (V90 and V92) is classified as a transportation-related death. However, most boating in the United States is not for the purpose of transportation; therefore, drowning while boating is included in this report. Drowning was examined by setting (bathtub, swimming pool, natural water, boating, and other or unspecified), age, and race/ethnicity. Race/ethnicity was coded into five mutually exclusive categories: Hispanic (of any race), and four non-Hispanic racial groups (white, black, AI/AN, and Asian/Pacific Islander (A/PI)). Age was divided into 5-year age groups for overall and setting-specific drowning deaths among each racial/ethnic category. Among blacks, whites, and Hispanics, overall drowning was presented by year of age, and drowning in swimming pools and natural water were categorized by 2-year age groups to provide stable rates after infancy. Rates of drowning death for infants aged <1 year were dissimilar from other ages and were not combined. Death rates per 100,000 population were calculated using 1999–2010 U.S. Census bridged-race population estimates. Differences between rates representing at least 100 deaths were determined using z-tests; rates based on fewer than 100 deaths were compared using 95% confidence intervals from a gamma distribution.

Among all settings combined, AI/AN aged ≤29 years had the highest rates of drowning, with blacks having the second highest rates (Table). Overall, the rate for AI/AN was twice the rate for whites (2.57 per 100,000 population versus 1.32, respectively) and the rate for blacks was 1.4 times the rate for whites (1.90 versus 1.32, respectively). When considering drowning rates by age group, AI/AN were not statistically different from other races for some age groups (whites at ages 1–4 years, blacks at ages 5–9, 10–14, and 15–19 years). Among all settings combined, rates among A/PI aged ≤29 years were lower than for other groups; however, A/PI rates were higher than for whites and Hispanics at ages 5–9 years and higher than for whites at ages 10–14 and 15–19 years. By setting, disparities in drowning rates were greatest for swimming pool deaths, where the drowning death rate for blacks aged 5–19

* Additional information available at http://wonder.cdc.gov/ucd-icd10.html.

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TABLE. Numbers and rates* of fatal unintentional drowning among persons aged ≤29 years, by setting, race/ethnicity, and age group — United States, 1999–2010

	Age group (yrs)															
	<1		1–4		5–9		10–14		15–19		20–24		25–29		Total	
Setting	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**	**No.**	**Rate**
Drowning (all settings)																
AI/AN	11	—†	73	3.83	37	1.50	33	1.22	73	2.63	77	3.25	75	3.68	**379**	**2.57**
Asian/Pacific Islander	—	—	127	1.42	91	0.84	72	0.67	206	1.80	179	1.38	162	1.10	**846**	**1.18**
Black	145	2.03	654	2.30	569	1.54	690	1.75	956	2.44	620	1.78	496	1.58	**4,130**	**1.90**
Hispanic§	156	1.38	1,013	2.40	246	0.51	224	0.48	709	1.57	932	2.02	619	1.34	**3,899**	**1.37**
White	371	1.39	3,665	3.40	865	0.61	712	0.47	2,108	1.35	2,166	1.45	1,694	1.18	**11,581**	**1.32**
Total¶	**696**	**1.46**	**5,547**	**2.93**	**1,818**	**0.76**	**1,737**	**0.69**	**4,064**	**1.59**	**3,988**	**1.62**	**3,062**	**1.29**	**20,912**	**1.43**
Swimming pool																
AI/AN	—	—	13	—	—	—	—	—	—	—	—	—	—	—	**31**	**0.21**
Asian/Pacific Islander	—	—	69	0.77	35	0.32	16	—	23	0.20	26	0.20	44	0.30	**213**	**0.30**
Black	—	—	357	1.26	251	0.68	205	0.52	177	0.45	95	0.27	61	0.19	**1,152**	**0.53**
Hispanic§	—	—	531	1.26	82	0.17	42	0.09	61	0.14	71	0.15	61	0.13	**854**	**0.30**
White	48	0.18	1,872	1.74	233	0.17	87	0.06	121	0.08	97	0.06	100	0.07	**2,558**	**0.29**
Total¶	**61**	**0.13**	**2,852**	**1.51**	**616**	**0.26**	**356**	**0.14**	**383**	**0.15**	**295**	**0.12**	**268**	**0.11**	**4,831**	**0.33**
Natural water																
AI/AN	—	—	26	1.36	16	—	21	0.77	40	1.44	41	1.73	36	1.77	**180**	**1.22**
Asian/Pacific Islander	—	—	24	0.27	28	0.26	38	0.35	120	1.05	105	0.81	82	0.56	**397**	**0.55**
Black	—	—	74	0.26	134	0.36	244	0.62	427	1.09	267	0.77	217	0.69	**1,363**	**0.63**
Hispanic§	—	—	116	0.28	79	0.16	115	0.25	413	0.92	553	1.20	339	0.73	**1,616**	**0.57**
White	—	—	559	0.52	279	0.20	280	0.18	1,080	0.69	1,058	0.71	753	0.53	**4,015**	**0.46**
Total¶	**—**	**—**	**800**	**0.42**	**539**	**0.23**	**700**	**0.28**	**2,083**	**0.82**	**2,031**	**0.82**	**1,433**	**0.60**	**7,594**	**0.52**
Boating																
AI/AN	—	—	—	—	—	—	—	—	—	—	12	—	—	—	**34**	**0.23**
Asian/Pacific Islander	—	—	—	—	—	—	—	—	12	—	—	—	—	—	**30**	**0.04**
Black	—	—	—	—	12	—	14	—	41	0.10	48	0.14	42	0.13	**160**	**0.07**
Hispanic§	—	—	—	—	—	—	10	—	25	0.06	51	0.11	50	0.11	**144**	**0.05**
White	—	—	22	0.02	45	0.03	74	0.05	216	0.14	303	0.20	256	0.18	**920**	**0.10**
Total¶	**—**	**—**	**28**	**0.01**	**65**	**0.03**	**101**	**0.04**	**302**	**0.12**	**423**	**0.17**	**367**	**0.15**	**1,291**	**0.09**
Bathtub																
AI/AN	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**19**	**—**
Asian/Pacific Islander	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**24**	**0.03**
Black	88	1.23	79	0.28	16	—	23	0.06	16	—	25	0.07	31	0.10	**278**	**0.13**
Hispanic§	107	0.94	107	0.25	12	—	12	—	13	—	12	—	18	—	**281**	**0.10**
White	226	0.85	299	0.28	56	0.04	63	0.04	81	0.05	150	0.10	135	0.09	**1,010**	**0.12**
Total¶	**435**	**0.91**	**500**	**0.26**	**87**	**0.04**	**99**	**0.04**	**113**	**0.04**	**190**	**0.08**	**191**	**0.08**	**1,615**	**0.11**
Other or unspecified																
AI/AN	—	—	28	1.47	10	—	—	—	24	0.86	20	0.84	23	1.13	**115**	**0.78**
Asian/Pacific Islander	—	—	26	0.29	24	0.22	16	—	49	0.43	36	0.28	27	0.18	**182**	**0.25**
Black	50	0.70	142	0.50	156	0.42	204	0.52	295	0.75	185	0.53	145	0.46	**1,177**	**0.54**
Hispanic§	42	0.37	256	0.61	68	0.14	45	0.10	197	0.44	245	0.53	151	0.33	**1,004**	**0.35**
White	87	0.33	913	0.85	252	0.18	208	0.14	610	0.39	558	0.37	450	0.31	**3,078**	**0.35**
Total¶	**187**	**0.39**	**1,367**	**0.72**	**511**	**0.21**	**481**	**0.19**	**1,183**	**0.46**	**1,049**	**0.43**	**803**	**0.34**	**5,581**	**0.38**

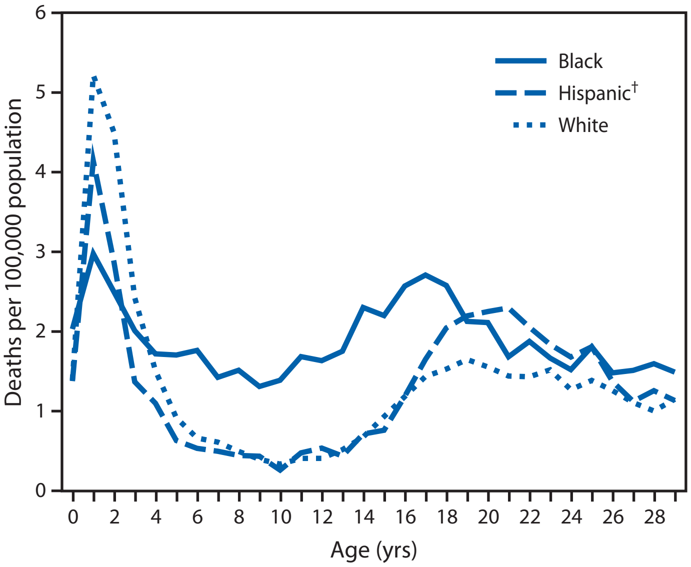
Abbreviation: AI/AN = American Indian/Alaska Native.
* Per 100,000 population.
† Death counts based on <10 deaths suppressed for confidentiality. Death rates based on <20 deaths suppressed for unreliability.
§ Persons identified as Hispanic might be of any race. Persons identified in the categories of white, black, AI/AN, or Asian/Pacific Islander are all non-Hispanic.
¶ Total rates for each setting include "not stated" race/ethnicity.

years was 5.5 times the rate for whites (0.55 per 100,000 population versus 0.10, respectively).

Among each racial/ethnic group, drowning settings varied similarly by age group (Table). Infants aged <1 year most commonly drowned in bathtubs, accounting for 62.5% (435 of 696) of drowning at this age. Children aged 1–4 and 5–9 years most commonly drowned in swimming pools, accounting for 51.4% (2,852 of 5,547) and 33.9% (616 of 1,818), respectively. The older age groups most commonly drowned in natural water settings.

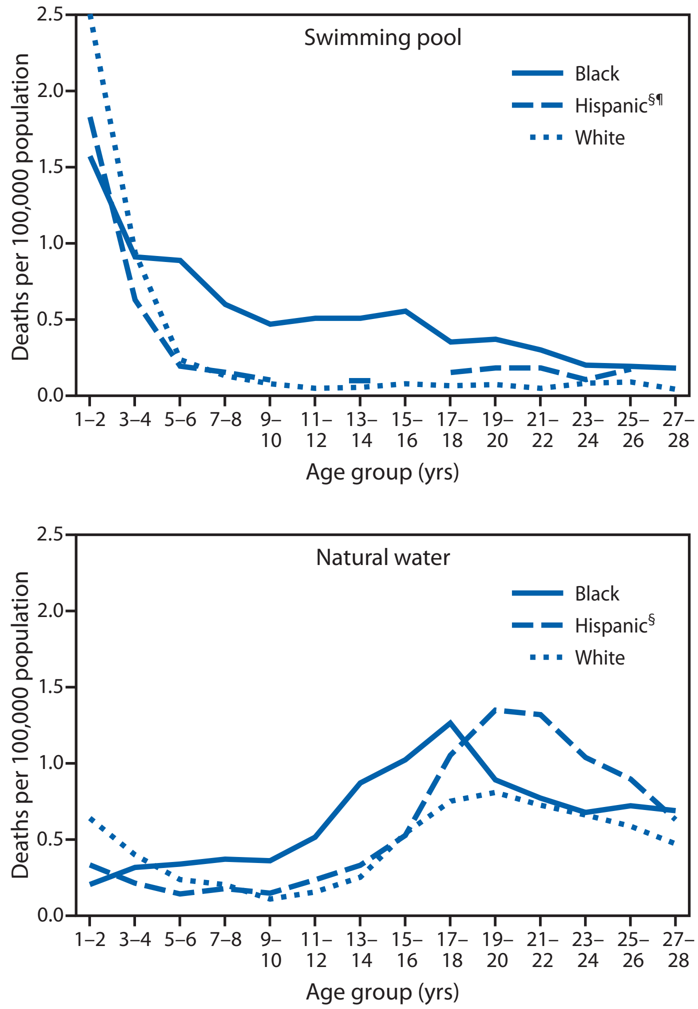
Racial/ethnic differences in overall drowning rates varied by each year of age (Figure 1). The highest rates for all three groups presented were among children aged 1 year, with rates

FIGURE 1. Rates of fatal unintentional drowning among persons aged ≤29 years, by age and race/ethnicity* — United States, 1999–2010



* Rates for other racial/ethnic groups are excluded because rates are not stable for single year of age.
† Persons identified as Hispanic might be of any race. Persons identified as white or black are all non-Hispanic.

FIGURE 2. Rates of fatal unintentional drowning in swimming pools and natural water settings among persons aged 1–28 years,* by age group and race/ethnicity† — United States, 1999–2010



* Rates for infants aged <1 year are dissimilar to all others and are excluded. Remaining ages 1–28 years are paired to create stable rates.
† Rates for other racial/ethnic groups are excluded because rates were not stable.
§ Persons identified as Hispanic might be of any race. Persons identified as white or black are all non-Hispanic.
¶ Death rates based on <20 deaths suppressed for unreliability.

for whites (5.22 per 100,000 population) higher than those for Hispanics (4.14), and rates for Hispanics higher than those for black children (2.98). Between the ages of 1 year and 5 years, drowning rates decreased significantly for each racial/ethnic group (83% for whites, 85% for Hispanics, and 43% for blacks). However, the drowning rates for black children were significantly higher than those for whites and Hispanics at every age from 5 years through 18 years. The greatest disparity for blacks compared with whites and Hispanics was at age 10 years (rate ratios of 4.2 and 5.3, respectively).

For drowning in swimming pool settings, the rates for black, white, and Hispanic children aged 1–2 years were highest; pool drowning rates among whites (2.53 per 100,000 population) were significantly higher than those for Hispanics (1.85) and blacks (1.59) in this age group. Rates of pool drowning among blacks were significantly higher than those for whites for ages 5–6 through 27–28 years and higher than those for Hispanics for ages 3–4 through 19–20 years; rate ratios were highest at ages 11–12 years for both comparisons (10.4 and 6.4, respectively) (Figure 2).

For drowning in natural water settings, the rates for blacks were significantly higher than those for whites for ages 7–8 through 17–18 years and higher than those for Hispanics for ages 5–6 through 15–16 years; rate ratios were highest at 13–14 years for both comparisons (3.5 and 2.6, respectively) (Figure 2). Rates of drowning in natural water settings among Hispanics were similar to those among whites from 5–6 years through 15–16 years, when rates among Hispanics increased, peaking at 1.35 per 100,000 population among Hispanics aged 19–20 years.

Discussion

Identifying racial/ethnic drowning disparities by setting can help focus prevention efforts. For instance, swimming pools are generally considered safer than natural water venues for aquatic activities because their depth is known and bottom often visible, they lack currents and underwater hazards, and the side

What is already known on this topic?

Drowning is the leading cause of unintentional injury death among children aged 1–4 years and one of the top three causes among persons aged ≤29 years. Rates of drowning among some racial/ethnic groups (e.g., non-Hispanic blacks and American Indians/Alaska Natives) are higher than rates for non-Hispanic whites. Black children and adults also report having more limited swimming ability than whites.

What is added by this report?

This is the first report to examine racial/ethnic disparities in fatal drowning rates by age and setting. Overall, American Indians/Alaska Natives were twice as likely, and blacks 1.4 times as likely, to drown as whites. The disparity increased when only drowning deaths in swimming pools were considered. Blacks aged 5–19 years were 5.5 times more likely to drown in a swimming pool than their white peers, and at ages 11–12 years, blacks drowned in swimming pools at 10 times the rate of whites.

What are the implications for public health practice?

Swimming skills can be life-saving. The disparity in self-reported swimming skills among black children and adults might help to explain the disparity in drowning rates and should be addressed through support of swimming lessons and other proven interventions.

can be reached a relatively short distance away. However, in the United States, drowning in a swimming pool continues to be a major threat to the health of toddlers and preschool children (*1,4*). Moreover, swimming pool drowning rates for black children, adolescents, and young adults were elevated compared with those for other racial/ethnic groups. Research suggests that learning basic swimming skills (e.g., controlled breathing, floating, and traversing a distance) can reduce drowning risks (*5,6*); however, many children and adults, especially blacks, report limited swimming skills (*7,8*).

Among all racial/ethnic groups, rates of drowning in natural water settings increase among teens and young adults. Alcohol use and increased independence, with resulting reduced supervision, might play a role in these deaths (*9*). In these locations, otherwise effective interventions such as fences and lifeguarding might not be feasible, but basic swimming skills might reduce drowning risk when teens or young adults enter the water, whether intentionally or unintentionally (*6*).

The high drowning rates among AI/AN populations reported here, especially in natural water settings, are consistent with previous studies (*10*). AI/AN children, teenagers, and young adults might be at higher risk because of greater exposure to natural bodies of water (*10*); little is known about AI/AN swimming skills.

Lack of exposure data is a major limitation in epidemiologic studies of drowning. For instance, in this study, drowning in a swimming pool was almost six times more likely among black children and adolescents aged 5–18 years than among their white peers. However, if a group's exposure to pools is less than that of their peers, their true drowning risks, based on equivalent exposure, could be even higher. The extent of exposure to recreational water settings likely varies substantially by age, sex, season, level of swimming skill, and other factors. Because exposure data are not available, the rates reported are population-based.

Additionally, the lack of critical information on death certificates limits more detailed analyses to explore causes of disparities. Death certificates do not include details on known risk and protective factors such as the victim's activities and swimming skill, the body of water, weather conditions, health conditions, use of life jackets, type and functionality of fences or barriers, supervision type and quality (e.g., impaired), presence of lifeguards, alcohol use, and whether CPR was performed by a bystander. These measures could be used to further explain disparities and would be helpful to guide targeted prevention programs.

Drowning continues to be a public health problem affecting racial/ethnic groups disparately among different age groups and in different aquatic settings; these differences require implementation of multiple prevention strategies. Drowning prevention strategies include use of barriers (like fencing) and life jackets, actively supervising or lifeguarding, teaching basic swimming skills, and performing bystander CPR. Practicality and effectiveness of these strategies might vary in different settings; however, basic swimming skills can be beneficial across all settings. Racial/ethnic minorities should be encouraged and enabled to gain skills needed to survive in the water. Additional information regarding drowning risk factors and prevention strategies is available at http://www.cdc.gov/homeandrecreationalsafety/water-safety/index.html.

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Pool Chemical–Associated Health Events in Public and Residential Settings — United States, 2003–2012, and Minnesota, 2013

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Pool chemicals are added to treated recreational water venues (e.g., pools, hot tubs/spas, and interactive fountains) primarily to protect public health by inactivating pathogens and maximizing the effectiveness of disinfection by controlling pH. However, pool chemicals also can cause injuries when handled or stored improperly. To estimate the number of emergency department (ED) visits for injuries associated with pool chemicals in the United States per year during 2003–2012, CDC analyzed data from the U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS). This report summarizes the results of that analysis. In 2012 alone, an estimated 4,876 persons (95% confidence interval [CI] = 2,821–6,930) visited an ED for injuries associated with pool chemicals. Almost half of the patients were aged <18 years. This report also describes a pool chemical–associated health event that occurred in Minnesota in 2013, which sent seven children and one adult to an ED. An investigation by the Minnesota Department of Health (MDH) determined the cause to be poor monitoring of or response to pool chemistry. Pool chemical–associated health events are preventable. CDC's Model Aquatic Health Code (MAHC) (*1*) is a resource that state and local agencies can use to optimize prevention of injuries and illnesses associated with public treated recreational water venues, including pool chemical–associated health events.

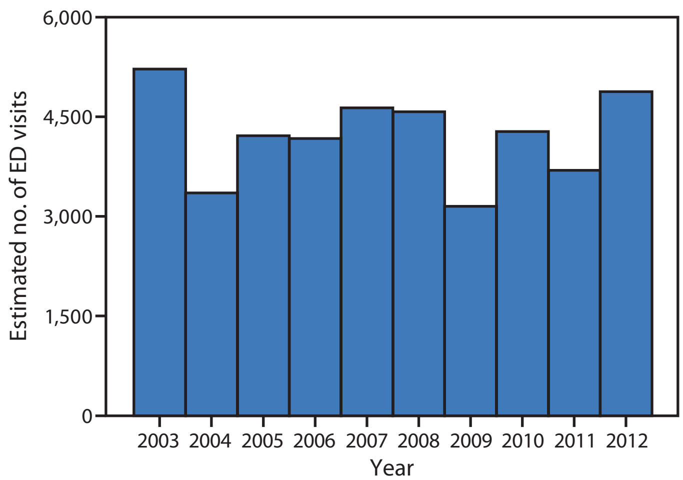
NEISS captures data on ED visits for injuries associated with consumer products, including product codes (e.g., pool chemical code: 938); the most severe diagnosis; the most seriously injured body part; incident location; disposition, age, sex, and race/ethnicity of the patient; and two 71-character narrative fields to describe events leading to injury. These data are collected from a nationally representative probability sample of approximately 100 hospitals across the United States, and thus can be used to calculate national estimates. Each case was weighted based on the inverse probability of the hospital being selected, and the weights were summed to produce national estimates; 95% CIs were calculated, accounting for the sample weights and complex sampling design. Rates per 100,000 person-years were calculated using these estimates and U.S. Census Bureau population estimates (*2*).

In the United States during 2003–2012, the median estimated number of persons visiting an ED for pool chemical–associated injuries per year was 4,247 (range = 3,151–5,216) (Figure). In 2012, an estimated 4,876 persons (95% CI = 2,821–6,930; 1.6 per 100,000 person-years) visited an ED for injuries associated with pool chemicals (Table). Almost half (46.9%) of the patients were aged <18 years (an estimated 2,289 persons [95% CI = 965–3,613]; 3.1 per 100,000 person-years). The most frequent diagnosis was poisoning (an estimated 2,167 injuries [95% CI = 1,219–3,116]; 0.7 per 100,000 person-years). Of the 50 actual visits to NEISS-participating EDs resulting in a poisoning diagnosis, 46 (92.0%) stemmed from inhalation of vapors, fumes, or gases rather than ingestion. More than a third (36.1%) of the injuries occurred at a residence. Of the total 109 actual visits to NEISS-participating EDs, 79 (72.5%) occurred over the summer swim season (Saturday of Memorial Day weekend through Labor Day); 47 (43.1%) occurred on a Saturday or Sunday. No deaths were documented. Patients were injured when handling pool chemicals without using personal protective equipment such as goggles (especially while opening containers), when pool chemicals were added to the water just before the patient entered the water (frequently in residential and hotel settings), and when pool chemicals were not secured away from children.

In December 2013, a mother notified MDH that multiple persons had developed rashes and symptoms of respiratory illness after attending a child's birthday party on the previous Saturday in December at an indoor hotel swimming pool and spa. MDH conducted a cohort study and enrolled all 12 party attendees, who were interviewed by telephone using a standardized questionnaire. Eight of the 12 reported developing a raised, red rash all over their body. Ill persons also reported headache, cough, sore throat, vomiting, and difficulty urinating. The eight ill persons reported illness onset 5.5–7.0 hours after first exposure to the swimming pool or spa. All eight ill persons sought medical attention at an ED, where their signs and symptoms were clinically diagnosed as chemical burns. Inspection by an MDH environmental health specialist 2 days after the birthday party revealed free chlorine* levels ≥15–30 ppm in both the swimming pool and spa, exceeding the state limit of 5.0 ppm. The pH was measured at 9.0 in

* Chlorine in water (found as an aqueous mixture of hypochlorous acid and hypochlorite anion) that can serve as an effective disinfectant (also referred to as free available chlorine or residual chlorine).

FIGURE. Estimated number of emergency department (ED) visits for injuries associated with pool chemicals — United States, National Electronic Injury Surveillance System, 2003–2012



both bodies of water, exceeding the state pH maximum of 8.0. Review of the daily log for the previous 10 days indicated the combined chlorine[†] level had been 10–17 ppm in the pool and 0.8–8.4 ppm in the spa, exceeding the state limit of 0.5 ppm. No remediation steps were documented. As a result of this outbreak investigation, the hotel installed new automated controllers and liquid chlorine feeders to ensure chemical disinfectant levels were kept within regulatory limits.

Discussion

For almost 100 years, pool chemicals have provided the primary barrier to the transmission of infectious pathogens in treated recreational water venues. However, improper pool chemical handling and storage practices and poor pool operation can cause injuries (*3–6*), despite their preventable nature. The need to maximize the health benefits of water-based physical activity (*7*) while minimizing the risk for transmission of infectious pathogens and pool chemical–associated health events should translate into pool owners and operators making prevention of these adverse health events a core element in managing risk at both public and residential treated recreational water venues (Box). With NEISS estimating approximately 4,900 pool chemical–associated injuries for 2012, increased awareness about these injuries and how they can be prevented is needed.

The Minnesota pool chemical–associated health event highlights the need for improvements in training and pool operation. Multiple factors might have contributed to this event. First, chlorine levels and pH documented days after the event exceeded Minnesota's maximum allowable limits and suggest that the original automated systems to monitor and feed chemicals were not functioning properly. Second, the pool operators either 1) did not check the pool chemistry or equipment as required or 2) identified problems and either did not resolve them or failed to document remediation steps taken. Third, as with almost half of NEISS pool chemical–associated health events, this event occurred during a weekend, a time when pool and spa use might be increased and the likelihood of a trained operator being on duty might be decreased.

The findings in this report are subject to at least four limitations. First, although NEISS data provide a snapshot of pool chemical–associated injuries leading to ED visits, they do not characterize the epidemiology of pool chemical–associated

[†] Chlorine that has reacted with organic or inorganic compounds in the water is no longer an effective disinfectant, and might cause ocular and respiratory irritation.

BOX. CDC recommendations for prevention of pool chemical–associated injuries for public pool operators and residential pool owners

Before you use pool chemicals
- Get trained in pool chemical safety (e.g., during an operator training course)
- Ask for help if you are not trained for specific tasks
- Read entire product label or Safety Data Sheet (SDS) before using

Using pool chemicals safely
- Keep young children away when handling chemicals
- Dress for safety by wearing appropriate safety equipment (e.g., safety goggles, gloves, and respirator)
- Read chemical product label before each use
  - Handle in a well-ventilated area
  - Open one product container at a time and close it before opening another
  - Minimize dust, fumes, and splashes
  - Measure carefully
- Never mix
  - chlorine products with acid; this could create toxic gases
  - different pool chemicals (e.g., different types of chlorine products) with each other or with any other substance
- Only predissolve pool chemicals when directed by product label
  - If product label directs predissolving, add pool chemical to water; never add water to pool chemical because a violent (potentially explosive) reaction can occur

Additional information on pool chemical safety is available at http://www.cdc.gov/healthywater/swimming/pools/preventing-pool-chemical-injuries.html.

TABLE. Estimated number, percentage, and rate of pool chemical–associated injuries treated in emergency departments — United States, National Electronic Injury Surveillance System (NEISS), 2012

Characteristic	Actual count	Weighted estimate*†	95% CI	%§	Annual rate¶
Total	**109**	**4,876**	**(2,821–6,930)**	**100.0**	**1.6**
Injury diagnosis					
Poisoning**	50	2,167	(1,219–3,116)	44.5	0.7
Dermatitis/Conjunctivitis	33	1,581	(385–2,778)	32.4	—
Chemical burns	9	469	(16–922)	9.6	—
Other	17	657	(234–1,081)	13.5	—
Affected body part					
All parts of the body (>50% of body)††	55	2,218	(1,269–3,167)	45.5	0.7
Eyeball	34	1,525	(572–2,478)	31.3	—
Other (e.g., upper trunk [not shoulder], hand, or foot)	20	1,133	(419–1,847)	23.2	—
Patient disposition					
Treated and released (or examined and released) without treatment	101	4,394	(2,804–5,983)	90.1	1.4
Treated and admitted for hospitalization (within same facility)	6	332	(0–701)	6.8	—
Treated and transferred to another hospital	1	79	(0–240)	1.6	—
Held for observation (includes admitted for observation)	1	71	(0–214)	1.5	—
Incident location					
Residence	40	1,759	(718–2,799)	36.1	—
Place of recreation or sports	10	408	(32–784)	8.4	—
School	1	70	(0–212)	1.4	—
Other public property	13	641	(0–1,380)	13.1	—
Unknown	45	1,998	(1,057–2,940)	41	—
Patient age (yrs)					
0–17	53	2,289	(965–3,613)	46.9	3.1
18–45	23	850	(421–1,278)	17.4	0.7
46–64	28	1,518	(811–2,225)	31.1	1.9
≥65	5	218	(0–441)	4.5	—
Patient sex					
Male	72	3,144	(1,832–4,456)	64.5	2.0
Female	37	1,731	(894–2,569)	35.5	1.1
Patient race/ethnicity					
White, non-Hispanic	66	3,468	(2,536–4,401)	71.1	—
Hispanic	7	443	(0–1,062)	9.1	—
Black, non-Hispanic	14	309	(69–549)	6.3	—
Other (e.g., multiple race)	1	6	(0–18)	0.1	—
Unknown	21	649	(34–1,264)	13.3	—

Abbreviation: CI = confidence interval.

* Each case was weighted based on the inverse probability of the hospital being selected, and the weights were summed to produce national estimates.

† Categorical counts might not total 4,876 because of rounding.

§ Categorical percentages might not total 100% because of rounding.

¶ Rates per 100,000 person-years were calculated using U.S. Census Bureau population estimates (available at http://www.census.gov/popest/data); 95% CIs were calculated using SAS survey procedures that accounted for the sample weights and complex sampling design. If the sample count was <20 or the coefficient of variation >30%, the estimate was considered unstable and not reported. Rates by incident location and race/ethnicity are not reported because of the high percentage of missing data.

** Poisoning includes ingestion as well as inhalation of vapors, fumes, or gases.

†† For a poisoning injury diagnosis, NEISS requires that affected body part be coded as "all parts of the body (>50% of body)."

injuries that do not result in an ED visit. Second, missing NEISS data limits understanding of basic characteristics of these adverse health events (e.g., patient's race) and appropriate points for intervention (e.g., public versus residential settings). Third, a few of the events could have been misclassified as being caused by pool chemicals when they were not (e.g., dermatitis caused by *Pseudomonas* rather than pool chemicals). Finally, water chemistry can change quickly, making it difficult to determine the etiology of and factors contributing to a pool chemical–associated health event.

The continuing occurrence of pool chemical–associated health events and drowning in pools (*9,10*), as well as the significantly increased annual incidence of recreational water–associated outbreaks (range = 6–84 outbreaks) during 1978–2010 (which primarily is associated with treated recreational water venues and caused by the extremely chlorine-tolerant *Cryptosporidium* [*8*]), underscore the need for regulators at the state and local levels to optimize protection of swimmer and aquatics staff health, in part, by regularly updating state and local codes for public treated recreational water venues. This updating process requires staffing, resources,

What is already known on this topic?

Chemicals are added to treated recreational water venues (e.g., pools, hot tubs/spas, and interactive fountains) to inactivate pathogens and maximize the efficacy of the disinfection process by controlling pH. However, these chemicals can cause injuries when handled or stored improperly. Pool chemical–associated health events are preventable.

What is added by this report?

In 2012, an estimated total of approximately 4,900 persons visited an emergency department for pool chemical–associated injuries. Almost half of the patients (46.9%) were aged <18 years. More than a third (36.1%) of the injuries occurred at a residence.

What are the implications for public health practice?

CDC's Model Aquatic Health Code (available at http://www.cdc.gov/mahc) is a resource that state and local agencies can use to optimize prevention of injuries and illness associated with public treated recreational water venues.

and expertise that might not always be available to individual jurisdictions. Consequently, CDC has been leading a national consortium of public health, aquatics sector, and academic stakeholders to develop model guidance (i.e., the MAHC [*1*]) to aid state and local agencies in incorporating the latest science and best practices into their codes covering design and construction, operation and maintenance, and policies and management of public treated recreational water venues. The first edition of the MAHC will be posted in summer 2014 after the last of two public comment periods closes May 27, 2014. The MAHC will be periodically updated based on the latest reported data in peer-reviewed scientific journals, changes occurring in the aquatics sector (e.g., development of new treated recreational water venue types), and stakeholder input. Areas of the MAHC that should assist in decreasing the incidence of pool chemical–associated health events include requiring operator training, which covers pool chemical safety (e.g., wearing personal protective equipment while handling pool chemicals), and engineering changes to prevent incompatible pool chemicals from mixing.

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First Confirmed Cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Infection in the United States, Updated Information on the Epidemiology of MERS-CoV Infection, and Guidance for the Public, Clinicians, and Public Health Authorities — May 2014

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On May 14, 2014, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

Since mid-March 2014, the frequency with which cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection have been reported has increased, with the majority of recent cases reported from Saudi Arabia and United Arab Emirates (UAE). In addition, the frequency with which travel-associated MERS cases have been reported and the number of countries that have reported them to the World Health Organization (WHO) have also increased. The first case of MERS in the United States, identified in a traveler recently returned from Saudi Arabia, was reported to CDC by the Indiana State Department of Health on May 1, 2014, and confirmed by CDC on May 2. A second imported case of MERS in the United States, identified in a traveler from Saudi Arabia having no connection with the first case, was reported to CDC by the Florida Department of Health on May 11, 2014. The purpose of this report is to alert clinicians, health officials, and others to increase awareness of the need to consider MERS-CoV infection in persons who have recently traveled from countries in or near the Arabian Peninsula.* This report summarizes recent epidemiologic information, provides preliminary descriptions of the cases reported from Indiana and Florida, and updates CDC guidance about patient evaluation, home care and isolation, specimen collection, and travel as of May 13, 2014.

MERS-CoV was first reported to cause human infection in September 2012. Since mid-March 2014, the frequency with which cases have been reported has increased.† As of May 12, 2014, 536 laboratory-confirmed§ cases of MERS-CoV infection have been reported by WHO (Figure 1). This includes 145 deaths. All reported cases have been directly or indirectly linked through travel or residence to seven countries: Saudi Arabia, UAE, Qatar, Oman, Jordan, Kuwait, and Yemen (Figure 2). Public health investigations are ongoing to determine the reason for the increase in cases.

The median age of persons with laboratory-confirmed MERS-CoV infection is 49 years (range = <1–94 years); 346 (65%) cases are in males, and 104 (19%) occurred in health-care workers. Although 62% of cases involved severe respiratory illness requiring hospitalization, 32 (5%) occurred in persons who had mild symptoms or illness not requiring hospitalization and 110 (21%) were asymptomatic, generally as a result of contact investigations.

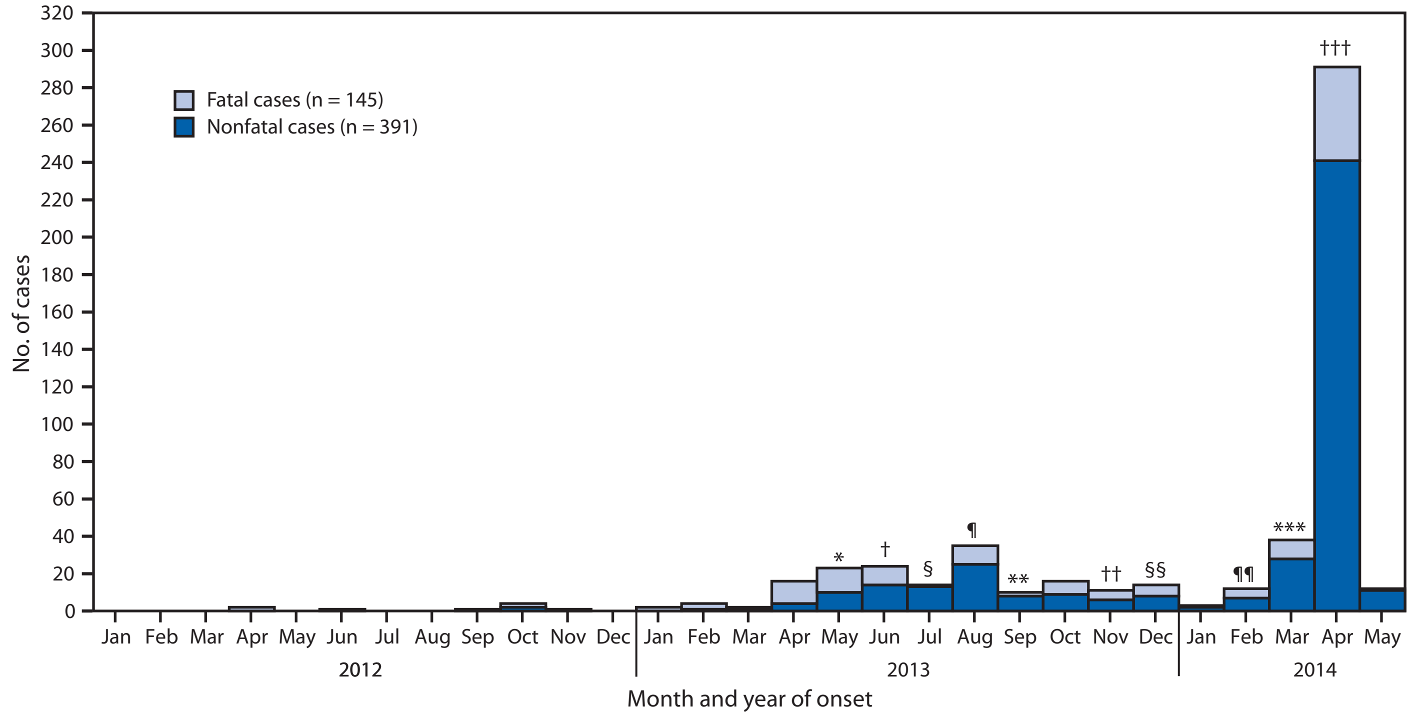
Countries outside the Arabian Peninsula with travel-associated MERS cases reported by WHO include the United Kingdom (UK), France, Tunisia, and Italy, where cases were reported in 2013(1–4), and Malaysia, Greece, Egypt, and the United States, where cases have been reported in 2014 (Figure 2). The travel-associated MERS cases reported by countries outside the Arabian Peninsula in 2014 occurred in persons with residence in or travel to Saudi Arabia. In addition, cases have occurred among travelers from Saudi Arabia to

* Countries considered in or near the Arabian Peninsula include Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Territories, Qatar, Saudi Arabia, Syria, UAE, and Yemen.

† Additional information available at http://www.who.int/csr/disease/coronavirus_infections/archive_updates/en.

§ Confirmatory laboratory testing requires a positive PCR on at least two specific genomic targets for MERS-CoV or a single positive target with sequencing on a second.

FIGURE 1. Number of confirmed cases of Middle East respiratory syndrome coronavirus infection (145 fatal and 391 nonfatal) reported by the World Health Organization (WHO) as of May 12, 2014, by month of illness onset — worldwide, 2012–2014

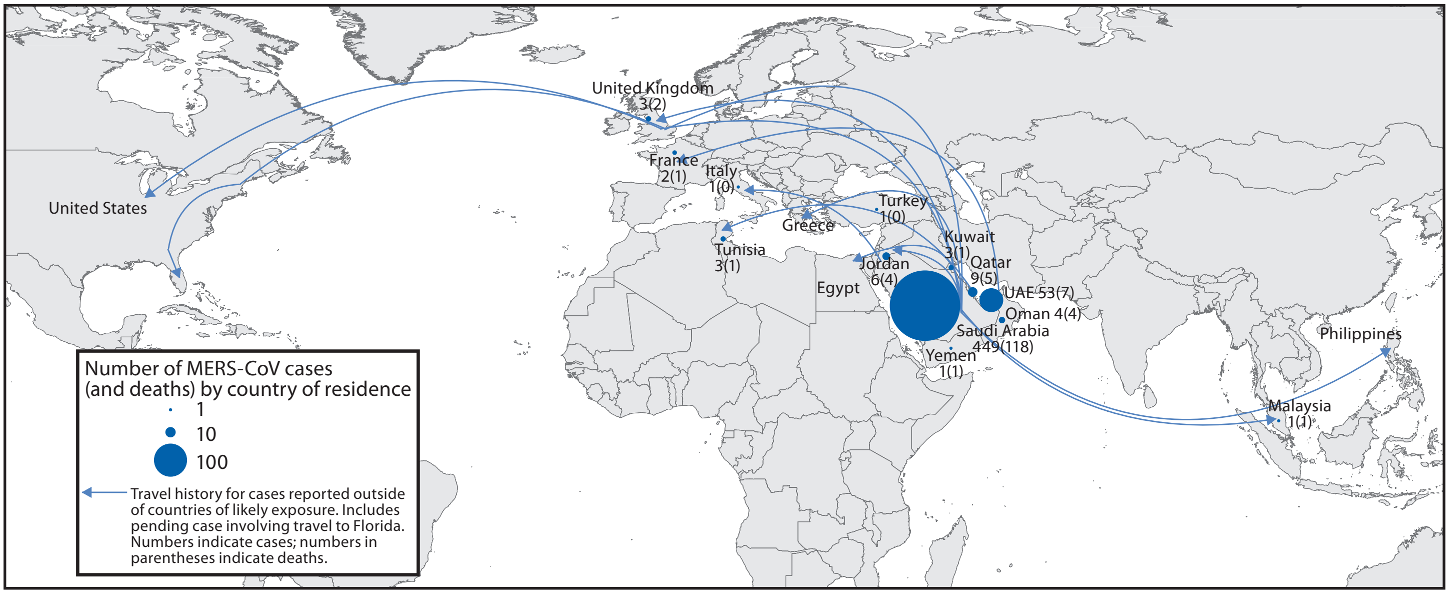


* Case count for May assumes that three cases included in WHO announcements on May 22, 23, and June 2, 2013, had symptom onset during May 2013.
† Case count for June assumes that 22 cases included in WHO announcements on June 14, 17, 22, 23, 26, and July 5, 7, 11, 2013, had symptom onset during June 2013.
§ Case count for July assumes that 10 cases included in WHO announcements on July 18, July 21, and August 1, 2013 had symptom onset during July 2013.
¶ Case count for August assumes that 25 cases included in WHO announcements (six cases on August 28, one case August 29, two cases August 30, and 16 cases September 16) had symptom onset during August 2013.
** Case count for September assumes that four cases included in WHO on October 4 and 24 announcements had symptom onset during September 2013.
†† Assumes that three cases had symptom onset during November 2013.
§§ Assumes that six cases had symptom onset during December 2013.
¶¶ Assumes that two cases had symptom onset during February 2014.
*** Assumes that 16 cases had symptom onset during March 2014.
††† Assumes that 66 cases had symptom onset during April 2014.

UAE and Jordan. Malaysia reported a case on April 17, 2014, in a man aged 54 years with underlying health problems. He had traveled to Jeddah, Saudi Arabia, visited a camel farm and consumed camel milk during his trip. He sought treatment in Malaysia on April 7 and died on April 13. Greece reported a case on April 18, 2014, in a male Greek citizen aged 69 years residing in Jeddah, Saudi Arabia, who traveled to Greece on April 17. His source of infection remains unclear. During the 14 days before onset of illness, he had extensive contact with a family member who was hospitalized in Jeddah but not with MERS-CoV infection. Egypt reported a case in a male aged 27 years who had been living in Riyadh, Saudi Arabia, for the past 4 years and returned to Egypt on April 25. He had contact with two persons with laboratory-confirmed MERS-CoV infection in Saudi Arabia. The UAE Ministry of Health reported a case on March 30, 2014, in a male aged 64 years who had traveled to Saudi Arabia, where he visited a camel farm. A case of MERS was reported by Jordan on April 22, 2014, in a male aged 25 years from Saudi Arabia. He had a family member in Saudi Arabia who was previously reported by WHO as having MERS.

The first case of MERS in the United States was reported to CDC by the Indiana State Department of Health on May 1, 2014, and confirmed by CDC on May 2. The case involved a male U.S. citizen aged ≥60 years who lived and worked in Saudi Arabia in a hospital in which patients with MERS had received care. He began feeling unwell on or around April 18 with a low-grade fever and myalgia without any respiratory symptoms. He traveled by commercial airlines from Saudi Arabia to Chicago, Illinois, on April 24, 2014, and then traveled by bus from Chicago to his destination in Indiana. On April 27, he developed shortness of breath, nonproductive cough, increasing fever, and rhinorrhea. On April 28, he was evaluated at and admitted to a hospital in Indiana. A chest radiograph revealed a right lower lobe infiltrate; chest computed tomography scan revealed bilateral lung infiltrates. The patient required supplemental oxygen, but did not require mechanical ventilation. On May 9, the patient

FIGURE 2. Confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection (N = 536) (and deaths) reported by the World Health Organization as of May 12, 2014, and history of travel from in or near the Arabian Peninsula within 14 days of illness onset — worldwide, 2012–2014



Source: Adapted from Epidemiological update: Middle East respiratory syndrome coronavirus. Stockholm, Sweden: European Centre for Disease Prevention and Control; 2014. Available at http://www.ecdc.europa.eu/en/press/news/_layouts/forms/News_DispForm.aspx?List=8db7286c-fe2d-476c-9133-18ff4cb1b568&ID=998.

was no longer symptomatic and health officials verified that the patient had tested negative for MERS-CoV by polymerase chain reaction (PCR) in two sets of sputum, nasopharyngeal/oropharyngeal, and serum specimens collected on different days; the patient was considered to be fully recovered and was discharged from the hospital.

Before implementation of contact and airborne infection control precautions at the hospital in Indiana, 53 health-care personnel (HCP) had contact with the patient. Household contacts (who were assumed to be exposed), a community contact (a business associate in Cook County, Illinois, with whom the patient had extended face-to-face contact on April 25), and exposed HCP were asked to monitor themselves twice daily for symptoms and fever for 14 days after exposure, the period in which symptoms of MERS would be expected to appear. Household contacts and exposed HCP were recommended to wear a mask when outside of the house or in contact with other household members while on voluntary home quarantine¶ for 14 days after contact. HCP who had unprotected close contact with the patient and were asymptomatic returned to work 14 days after the last exposure and confirmed negative laboratory results for MERS-CoV. Nasopharyngeal and serum specimens collected from all household, community, and HCP contacts have tested negative by PCR for MERS-CoV.

¶ Quarantine is defined as the separation or restriction of movement of well persons who might have been exposed to a communicable disease, while determining if they become ill.

The Indiana case involved a person who traveled on commercial flights between Saudi Arabia and the UK and between the UK and Chicago while he was symptomatic and potentially contagious. He then traveled for 70 minutes by bus from Chicago to his final destination in Indiana. For the two flights, the UK has jurisdiction for the flight from Saudi Arabia to the UK and the United States has jurisdiction for the flight from the UK to Chicago. Because little is known about the modes of transmission of MERS-CoV, CDC included all passengers and crew aboard the flight from the UK to Chicago and the bus in a contact investigation. Eighty airline passengers (including two who were also on the Saudi Arabia to UK flight) and 12 crew members were identified for follow-up from the flight between the UK and Chicago. As of May 12, 2014, a total of 58 airline passengers on the flight from the UK to Chicago have been contacted by CDC or state and local health departments; health authorities in other countries were notified about the other 22 passengers. Eight passengers on the Saudi Arabia to UK flight who later traveled to the United States have also been contacted. Four airline passengers on the flight from the UK to Chicago reported mild respiratory symptoms. Although these symptoms did not meet the case definition for a patient under investigation for MERS, to be especially cautious given the limited data on transmission of MERS-CoV, CDC and state health departments closely monitored the status of these four passengers for the duration of the 14 day incubation period. All airline crew were contacted and reported no symptoms.

Nine passengers and a driver were on the bus that the affected person traveled on from Chicago to his final destination in Indiana. Five bus passengers and the bus driver were contacted and reported no illness. All airline and bus contacts were asked to monitor their body temperature twice daily and to report any fever (temperature of 100°F [37.8°C] or higher) or respiratory symptoms to their state or local health department until 14 days after the flight or bus trip.

A second imported case of MERS in the United States, identified in a traveler, was reported to CDC by the Florida Department of Health on May 11, 2014, and confirmed by CDC on May 11. The traveler, a health-care provider aged ≥40 years who resides and works in Saudi Arabia, is not linked to the case confirmed in Indiana. On May 1, the patient traveled by commercial airline from Saudi Arabia to the UK, the UK to Boston, Massachusetts; then Boston to Atlanta, Georgia; and then Atlanta to Orlando, Florida. The patient began feeling unwell during the flight from Saudi Arabia to the UK and continued to feel unwell on subsequent flights, with symptoms including myalgia, fever, chills, and a slight cough. He continued to have intermittent fevers, nausea, and severe myalgia during his time in Orlando, and on May 9, he went to a hospital emergency department. He was admitted to that hospital the same day to be evaluated for an acute viral syndrome. At the time of admission, the patient was afebrile. Public health and hospital officials have implemented infection control precautions (standard, contact, and airborne) at the hospital and are interviewing HCP who had close contact** with the patient and as well as household contacts to obtain detailed information on their exposures and monitor their health. CDC and state and local health departments are conducting airline contact tracing to identify and notify U.S. travelers who might have been exposed to this infected traveler.

CDC used BioMosaic†† to analyze International Air Transport Association travel volume data for May and June from Saudi Arabia and UAE to North America for 2010–2012. This analysis showed that Cook County, which includes Chicago O'Hare airport, historically has the fourth highest volume of arriving travelers from Saudi Arabia and UAE for the months of May and June (Figure 3). Five cities in the United States accounted for 75% of arrivals from Saudi Arabia and UAE; approximately 100,000 travelers are estimated to arrive in these five cities from Saudi Arabia and UAE in May and June 2014.

** Close contact is defined as 1) any person who provided care for the patient, including a health-care worker or family member, or had similarly close physical contact; or 2) any person who stayed at the same place (e.g. lived with, visited) as the patient while the patient was ill.

†† An analytic tool for integrating demography, migration, and health data developed as collaboration between the University of Toronto (Kamran Kahn), Boston Children's Hospital (John Brownstein), and CDC's Division of Global Migration and Quarantine (Martin Cetron).

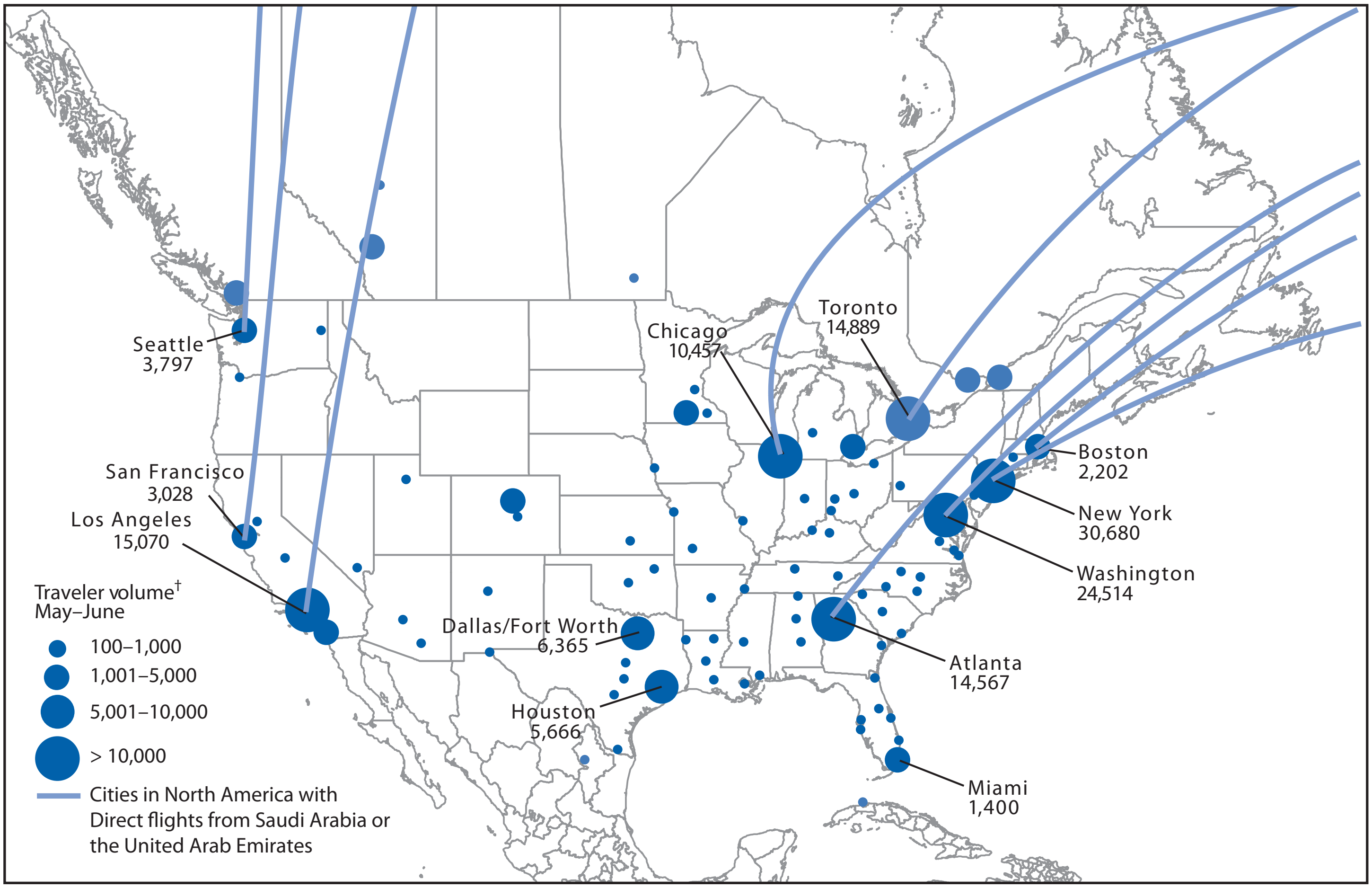
Discussion

This report describes the first two cases of MERS identified in the United States. These cases highlight the critical role that health-care providers play in considering a diagnosis of MERS-CoV infection in persons who develop respiratory symptoms within 14 days after traveling from countries in or near the Arabian Peninsula. Recent travelers might seek medical care distant from cities served by international air connections and all HCP need to be vigilant, including those outside of cities with the highest number of arriving travelers from the Arabian Peninsula. Health-care providers and health departments throughout the United States should be prepared to consider, detect, and manage cases of MERS.

Recommendations might change as additional data become available. Guidance on evaluation of patients for MERS, infection control, interim home care and isolation, and collection and testing of clinical specimens for MERS-CoV infection is summarized below and is available on CDC's MERS website (http://www.cdc.gov/coronavirus/mers/index.html). No specific treatment for MERS-CoV infection is currently available. WHO has posted guidance for clinical management of MERS patients at http://www.who.int/csr/disease/coronavirus_infections/InterimGuidance_ClinicalManagement_NovelCoronavirus_11Feb13u.pdf?ua=1.

Evaluating patients. CDC's Interim Guidance for Health Professionals was updated on May 9, 2014, to include additional guidance on evaluation of patients and close contacts. Health-care professionals should evaluate for MERS-CoV infection in patients in the United States who meet the following criteria: A) fever and pneumonia or acute respiratory distress syndrome (based on clinical or radiologic evidence) and either 1) a history of travel from countries in or near the Arabian Peninsula within 14 days before symptom onset or 2) close contact with a symptomatic traveler who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries in or near the Arabian Peninsula, or 3) is a member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which MERS is being evaluated in consultation with a state or local health department; or B) close contact with a confirmed or probable case of MERS while the affected person was ill. Additional guidance for health-care providers is available at http://www.cdc.gov/coronavirus/mers/interim-guidance.html. Health-care providers should immediately report any person being evaluated for MERS-CoV infection who meets the criteria of a patient under investigation to their state or local health department. States will then notify CDC. Case definitions are available at http://www.cdc.gov/coronavirus/mers/case-def.html.

FIGURE 3. Points of entry and volume of travelers on flights to the United States and Canada from Saudi Arabia and the United Arab Emirates — May–June 2014*



Source: BioMosaic, an analytic tool for integrating demography, migration, and health data developed in collaboration between the University of Toronto, Boston Children's Hospital, and CDC's Division of Global Migration and Quarantine.
* Excludes cities with fewer than 100 travelers from affected areas.
† Based on total number of arrivals at final destination in North America.

Health-care providers should contact their state or local health department if they have any questions.

Infection control. HCP should adhere to recommended infection-control measures, including standard, contact, and airborne precautions (including eye protection), while managing symptomatic contacts and patients who are patients under investigation or who have probable or confirmed MERS-CoV infections. Additional CDC guidance on MERS-CoV infection control in health-care settings is available at http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html.

Interim home care and isolation. Ill persons who are being evaluated for MERS and do not require hospitalization for medical reasons may be cared for and isolated in their home. Health-care providers should contact their state or local health department to determine whether home isolation or additional measures are indicated because recommendations might be modified as more data become available. Isolation is defined as the separation or restriction of activities of an ill person with a contagious disease from those who are well. Additional information on home care and isolation guidance is available at http://www.cdc.gov/coronavirus/mers/hcp/home-care.html.

Collecting and testing clinical specimens for MERS-CoV infection. To increase the likelihood of detecting MERS-CoV infection, CDC recommends collecting multiple specimens from different sites at different times after symptom onset. For suspected MERS cases, health-care providers should collect the following specimens for submission to CDC or the appropriate public health laboratory: nasopharyngeal swab, oropharyngeal swab (which can be placed in the same tube of viral transport medium as nasopharyngeal swabs), sputum, serum, and stool/rectal swab. In addition to nasopharyngeal/oropharyngeal specimens, collection of lower respiratory specimens (e.g., sputum or bronchoalveolar lavage) is recommended because MERS-CoV infection has been confirmed in sputum of patients who tested negative by PCR for MERS-CoV in nasopharyngeal/oropharyngeal specimens. Personnel collecting specimens should wear recommended personal protective equipment (i.e., gloves, gowns, eye protection, and respiratory protection), and recommended infection control precautions should be used when collecting specimens. Health-care providers should notify their state or local health departments if they suspect MERS-CoV infection in a person. State or local health departments should notify CDC of patients under investigation and any positive MERS-CoV test. Additional information is available at http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html.

Travel guidance. In response to the recent increase in cases of MERS in countries in and near the Arabian Peninsula, CDC updated its advice for travelers. CDC's travel notice has been upgraded to a Level 2 Alert,[§§] which includes enhanced precautions for travelers to countries in or near the Arabian Peninsula who plan to work in health-care settings. These travelers should review CDC's recommendations for infection control for confirmed or suspected MERS patients before they depart, practice these precautions while in the area, and monitor their health closely during and after their travel.

CDC continues to recommend that all U.S. travelers to countries in or near the Arabian Peninsula protect themselves from respiratory diseases, including MERS, by washing their hands often and avoiding contact with persons who are ill. If travelers to the region have onset of fever with cough or shortness of breath during their trip or within 14 days of returning to the United States, they should seek medical care. They should call ahead to their health-care provider and mention their recent travel so that appropriate isolation measures can be taken in the health-care setting.

More detailed travel recommendations related to MERS are available at http://wwwnc.cdc.gov/travel/notices/alert/coronavirus-arabian-peninsula-uk. In addition to the Travelers' Health website, CDC is using partner distribution lists, e-mail subscription channels, social media, and airport messages to alert U.S. travelers and clinicians about precautions for MERS.

[§§] A Level 2 Alert includes recommendations for travelers to follow new or enhanced precautions for the affected destination because of the increased health risk. Additional information available at http://wwwnc.cdc.gov/travel/notices#travel-notice-definitions.

[1]Division of Viral Diseases, National Center for Immunization and Respiratory Diseases, CDC; [2]Indiana State Department of Health; [3]Division of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Diseases, CDC; [4]Division of Global Health Protection, Center for Global Health, CDC; [5]Lake County Health Department, Indiana; [6]Florida Department of Health; [7]Epidemic Intelligence Service, Division of Scientific Education and Professional Development, CDC; [8]Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, CDC; [9]Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, CDC; [10]Illinois Department of Public Health; [11]Dr. P. Phillips Hospital, Orlando, Florida; [12]Massachusetts Department of Public Health; [13]Cook County Department of Public Health, Illinois; [14]Community Hospital, Munster, Indiana; [15]Florida Department of Health-Orange County; [16]Division of Preparedness and Emerging Infections, National Center for Emerging and Zoonotic Infectious Diseases, CDC; [17]Influenza Coordination Unit, Office of Infectious Diseases, CDC; [18]National Center for Chronic Disease Prevention and Health Promotion, CDC; [19]Office of the Director, National Center for Immunization and Respiratory Diseases, CDC (Corresponding author: Stephanie R. Bialek, 404-639-8200)

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Announcements

Preexposure Prophylaxis for the Prevention of HIV Infection — 2014 Available Online

The documents *Preexposure Prophylaxis for the Prevention of HIV Infection — 2014: a PHS Clinical Practice Guideline** and a *Clinical Providers' Supplement*† are now available online.

The guideline and supplement are intended for use by clinicians in the United States providing medical care for persons without human immunodeficiency virus (HIV) infection who are at substantial risk for acquiring it by their sexual or injection drug use behaviors. The guideline is the first federal resource that provides comprehensive, evidence-based information about the provision of daily oral antiretroviral preexposure prophylaxis (PrEP), including how to identify patients with indications for PrEP, guidance for safe prescribing practices, monitoring clinical safety for patients taking PrEP medications, and supporting medication adherence and the reduction of HIV risk behaviors. The supplement provides additional tools and information that might be useful to clinicians prescribing PrEP.

* Available at http://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf.
† Available at http://www.cdc.gov/hiv/pdf/prepprovidersupplement2014.pdf.

Click It or Ticket Campaign — May 19–June 1, 2014

In 2012, approximately 21,000 passenger vehicle occupants died in motor vehicle crashes in the United States; 52% were unrestrained at the time of the crash (*1*). An additional estimated 2.6 million nonfatal injuries from motor vehicle crashes were treated in emergency departments (*2*). Seat belt use in the United States reached 86% in 2012, but millions of U.S. residents continue to travel unrestrained (*3*). Using a seat belt is one of the most effective ways to prevent serious injury or death in the event of a crash. Seat belts saved an estimated 12,174 lives in 2012. If everyone had been buckled up, an estimated 3,031 additional lives could have been saved (*1*).

Click It or Ticket, a national campaign coordinated annually by the National Highway Traffic Safety Administration (NHTSA) to increase the proper use of seat belts, takes place May 19–June 1, 2014. Law enforcement agencies across the nation will conduct intensive, high-visibility enforcement of seat belt laws during daytime and nighttime hours. Nighttime enforcement of seat belt laws is encouraged because seat belt use is lower at night (*4*). Campaign activities in 2014 will focus primarily on men aged 18–34 years, who research has shown are less likely to wear seat belts (*1*). Additional information about 2014 Click It or Ticket campaign activities is available from NHTSA at http://www.nhtsa.gov/Driving+Safety/Occupant+Protection. Additional information on preventing motor vehicle crash related injuries is available from CDC at http://www.cdc.gov/motorvehiclesafety.

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Announcements

Report Available on Ensuring the Safety and Effectiveness of Laboratory Data in Electronic Health Record Systems

Electronic health record (EHR) systems can improve patient care by making it easier to collect, share, and interpret patient data. However, variations in EHR system design, functionality, and ability to exchange data accurately (interoperability) can cause preventable patient safety risks. The Clinical Laboratory Improvement Advisory Committee (CLIAC) of the U.S. Department of Health and Human Services has raised concerns regarding the usability and interoperability of laboratory data in EHR systems. In response, in July 2012, CDC convened the Communication in Informatics Workgroup. Recommendations and suggestions from the workgroup are included in a new report from CDC, "Ensuring the Safety and Effectiveness of Laboratory Data in Electronic Health Record Systems," available at http://www.cdc.gov/labhit.

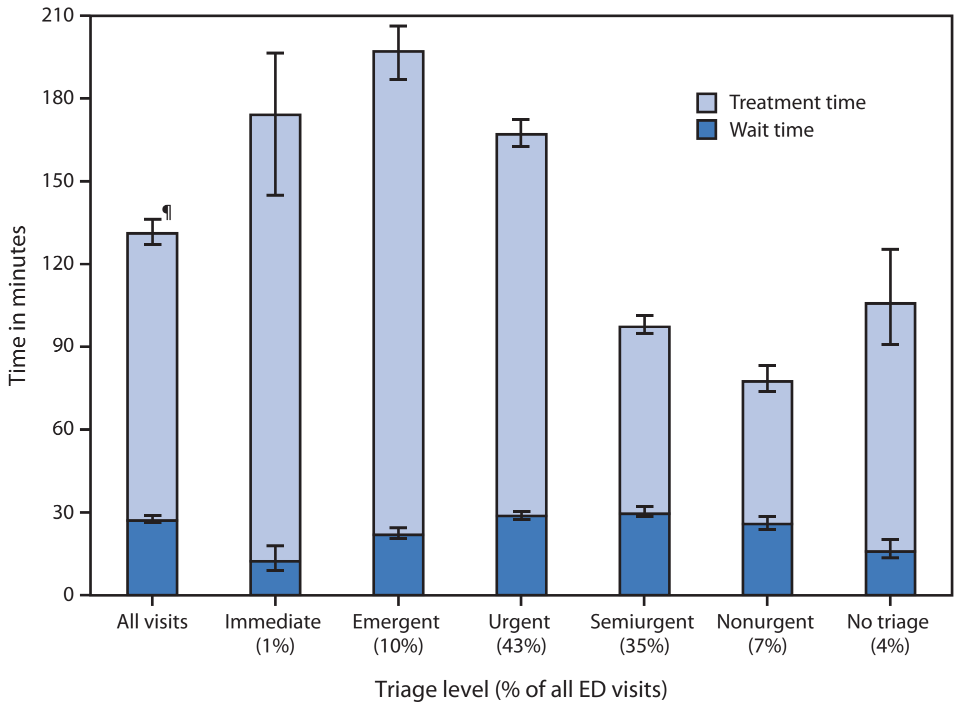
The CDC report illustrates the seriousness of laboratory data-related interoperability issues and discrepancies in the way EHR systems display data. The report also proposes three focus areas (engagement, data integrity and usability, and innovation) for action by laboratory professionals and organizations to support development of the health information technology infrastructure and ensure the safe and effective use of laboratory information.

Actions cited within those focus areas include 1) providing laboratory expertise for health information technology decision-making in the design, development, and implementation of EHR systems; 2) guiding and maintaining data integrity and usability to ensure that laboratory data are accurately presented in the EHR and available at the point of care; and 3) partnering with stakeholders to stimulate innovation in EHR technology and usability to reduce laboratory data–related errors attributed to the use of EHR systems.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Median Emergency Department (ED) Wait and Treatment Times,* by Triage Level† — National Hospital Ambulatory Medical Care Survey, United States, 2010–2011§



* Wait time was defined as the difference between the time of arrival in the ED and the time the patient had initial contact with a physician, physician assistant, or nurse practitioner. Treatment time was defined as the difference between the time the patient had initial contact with a physician, physician assistant, or nurse practitioner and the time the patient was discharged from the ED to another hospital unit or to the patient's residence.

† Triage level was based on a five-point scale: 1 = immediate, 2 = emergent, 3 = urgent, 4 = semiurgent, and 5 = nonurgent. No triage was defined as a visit to an emergency service area that did not conduct nursing triage. Triage level was imputed for 19.5% of records included in this analysis. Emergency service areas using three or four level triage systems had their responses rescaled to fit the five level system. In 2010 and 2011, rescaling was required for approximately 12.0% of records.

§ Estimates are based on 2-year annual averages. Approximately 16.9% of records were excluded from this analysis for the following reasons: patient not seen by a physician, physician assistant, or nurse practitioner; record missing wait or length of visit times; treatment time = 0; or disposition of left after triage, left against medical advice, transferred, or dead on arrival.

¶ 95% confidence interval.

The median wait time to be treated in the ED was about 30 minutes, and the median treatment time was slightly more than 90 minutes in 2010–2011. At visits in which patients were triaged, the shortest median wait time was 12 minutes for patients who had an immediate need to be seen. Treatment times were longer for patients who were triaged as immediate, emergent, and urgent compared with those who were triaged as semiurgent or nonurgent.

Source: National Hospital Ambulatory Medical Care Survey 2010-2011. Available at http://www.cdc.gov/nchs/ahcd.htm.

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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 30329-4027 or to *mmwrq@cdc.gov.*

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