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World Hepatitis Day — July 28, 2012

July 28, 2012, marks the second annual World Hepatitis Day, established in 2010 by the World Health Organization (WHO). Viral hepatitis is a largely silent epidemic; however, it is the leading cause of liver cancer and cirrhosis around the world. Approximately 500 million persons are living with chronic hepatitis B virus (HBV) or hepatitis C virus (HCV) infection; most are unaware of their infections, which contribute to nearly 1 million deaths annually (*1*).

In 2012, WHO established a global hepatitis program and developed a framework for the prevention and control of viral hepatitis that promotes a comprehensive approach with four strategic components: 1) awareness and advocacy; 2) data for decision making; 3) prevention of transmission; and 4) access to screening, care, and treatment.

This issue of *MMWR* includes a report from Egypt, which has the largest burden of HCV infection in the world. Much of the burden can be attributed to ongoing health-care–associated transmission. Through implementing an infection control program and providing subsidized care and treatment, major improvements in infection control were achieved, and nearly 190,000 persons received treatment otherwise not available. Despite these efforts, Egypt continues to have a large and growing hepatitis C epidemic and would benefit from a comprehensive viral hepatitis control program that includes raising community awareness, ensuring a safe blood supply, and establishing a viral hepatitis surveillance system.

Additional information about World Hepatitis Day is available at http://www.cdc.gov/hepatitis.

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Progress Toward Prevention and Control of Hepatitis C Virus Infection — Egypt, 2001–2012

Worldwide, 130–170 million persons are living with chronic hepatitis C virus (HCV) infection (*1*), which, if left untreated, can result in cirrhosis and liver cancer. Egypt has the largest burden of HCV infection in the world, with a 10% prevalence of chronic HCV infection among persons aged 15–59 years (*2*). HCV transmission in Egypt is associated primarily with inadequate infection control during medical and dental care procedures (*3,4*). In response, the Egyptian Ministry of Health and Population (MOHP) in 2001 implemented a program to reduce health-care–associated HCV transmission and in 2008 launched a program to provide care and treatment. This report describes the progress of these programs, identifies deficiencies, and recommends enhancements, including the establishment of a comprehensive national viral hepatitis control program. Infection control programs implemented in 2001 at MOHP facilities resulted in improvements in infection control practices and a decrease in the annual incidence of HCV infection among dialysis patients from 28% to 6%. Through June 2012, a total of 23 hepatitis treatment facilities had been established in Egypt, providing care and treatment to nearly 190,000 persons with chronic HCV infection. Despite

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these programs, Egypt continues to face an ongoing hepatitis C epidemic. A comprehensive plan is needed to prevent and control hepatitis C in Egypt. This plan should address increasing community awareness and education, preventing of HCV infection in health-care settings, ensuring a safe blood supply, establishing surveillance and monitoring to track the effectiveness of control programs, and providing care and treatment.

Epidemiology of HCV infection in Egypt

The hepatitis C epidemic in Egypt began during 1960–1980, when mass campaigns were conducted to control schistosomiasis through parenteral antischistosomal therapy (PAT) administered by health-care workers using improperly sterilized glass syringes (*5*). HCV transmission is ongoing in Egypt, and incidence rates have been estimated at 2.4 per 1,000 person-years (165,000 new infections annually) (*6*). In 2008, nearly 15% of the population aged 15–59 years had antibodies to HCV (anti-HCV), and 10% (approximately 5 million persons) had chronic HCV infection (*2*); overall, an estimated 6 million Egyptians had chronic HCV infection in 2008. Prevalence of chronic HCV infection in Egypt is higher among men than women (12% and 8%, respectively), increases with age (reaching >25% among persons aged >50 years), and is higher among persons residing in rural versus urban areas (12% versus 7%) (*2*). Primary modes of HCV transmission include unsafe injections, other inadequate infection control practices, and unsafe blood transfusions (*4,6*). HCV transmission also occurs among injection-drug users in Egypt (*3*).

National Infection Control Program

Approximately 280 million injections were administered in Egypt during 2001, of which an estimated 8% (23 million) might have been unsafe (*7*). In response, MOHP launched an infection control program that year to promote safe health care in hospitals and health facilities throughout Egypt (*8*). A baseline assessment of MOHP facilities revealed 1) a lack of health-care workers with specific training or expertise in infection control; 2) a lack of formal infection control programs in most facilities; 3) poor understanding among health-care workers regarding standard precautions for infection control; and 4) absent or inadequate equipment reprocessing, sterilization practices, and waste management. In response, in 2003, national infection control guidelines were developed, and infection control programs were established in 450 MOHP facilities. To ensure ongoing improvement, health-care workers received training, and supervision and monitoring were conducted on a monthly basis. After the implementation of the national infection control program, improvements were observed in health-care worker compliance with standard precautions (e.g., hand hygiene, use of personal protective equipment, safe injection practices, appropriate reprocessing of instruments, and waste management) (Table). Among 60

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facilities with dialysis units, the annual incidence of HCV infection among previously uninfected recipients of renal dialysis decreased from 28% (before program implementation) to 6% (3 years after implementation).

In 2008, the Egyptian infection control guidelines were revised and adopted by the Eastern Mediterranean Regional Office of the World Health Organization for use in the region. In 2011, the program underwent an International Health Regulations assessment, which concluded that the program had substantially decreased iatrogenic transmission of HCV.

National Control Strategy for Viral Hepatitis

Given the high burden of viral hepatitis in Egypt, in 2006, MOHP established the National Committee for the Control of Viral Hepatitis (NCCVH). By April 2008, this committee had developed a National Control Strategy for Viral Hepatitis, which called for effective surveillance, enhancements in prevention to reduce the incidence of hepatitis B virus (HBV) and HCV infection, and expanded access to care and treatment for those with chronic infection. To date, implementation largely has been limited to the care and treatment component of the strategy; a national network of 23 viral hepatitis facilities has been established to provide viral hepatitis care and treatment at a substantially reduced cost. Facilities are located throughout Egypt and within 100 kilometers of every Egyptian city and village, allowing greater access to care and treatment. Each facility is directed by a trained hepatologist to ensure that care and treatment standards are met and provides a full spectrum of care. Persons 1) are tested to confirm HCV infection, 2) are screened for eligibility for subsidized treatment using uniform inclusion and exclusion criteria, 3) are given a baseline clinical assessment, and 4) receive care and treatment services, including medications and testing according to a standardized protocol. Standard therapy for HCV consists of 48 weeks of pegylated interferon and ribavirin. Oversight is provided by NCCVH, which collects electronic medical record data from the treatment sites, maintains a patient registry, regularly analyzes these data, and provides feedback to ensure provision of quality patient care. During 2008–2011, nearly 190,000 patients were provided with care and treatment (Figure). Preliminary results indicate that 51% of patients (most with HCV genotype 4, which causes approximately 90% of HCV infections in Egypt) achieved a sustained virologic response.

The estimated cost of the care and treatment program for the Egyptian government is $80 million annually, which covers 40% of total costs of the program; the remaining 60% is paid by insurance companies and patients. Market competition has driven down the price of medications for a standard 48-week course of treatment; since program inception, medication costs have decreased from approximately $12,000 to <$2,000 (*9*). Nevertheless, treatment costs remain a barrier, hampering efforts to reach a greater proportion of HCV-infected persons.

TABLE. Percentage of Ministry of Health and Population facilities applying selected infection control process indicators before and after implementation of an infection control program (ICP), by indicator — Egypt, 2003 and 2011

Indicator	Before implementation of ICP (2003) (N = 48 facilities)	After implementation of ICP (2011) (N = 436 facilities)
Hand hygiene	13.0	58.0
Use of personal protective equipment	32.5	60.7
Use of safe injection practices	31.6	73.3
Appropriate reprocessing of instruments	41.8	87.2
Availability of adequate waste management	47.0	85.6
Overall infection control score*	19.0	68.9

* The following parameters were assessed for the overall infection control score: administrative infection control–related items; infrastructure-related issues (e.g., sterilization department, waste storage area, and laundry), availability of critical supplies (e.g., soap, gloves, and disinfectants), health-care personnel adherence to standard precautions, surveillance for health-care–associated infections, isolation protocols, and kitchen standards.

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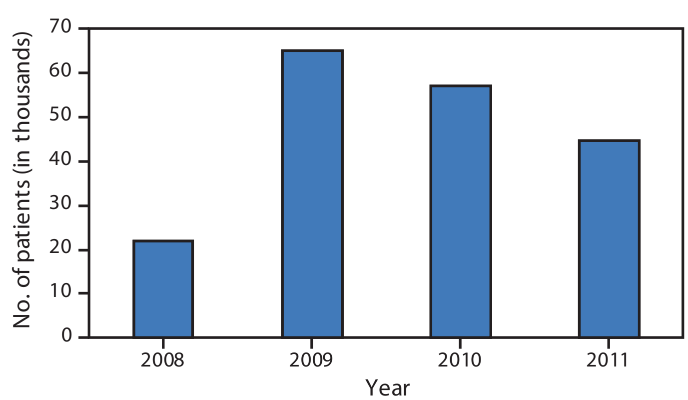
FIGURE. Estimated number of chronic hepatitis C patients receiving care and treatment, by year — Egypt, 2008–2011



Source: National Committee for the Control of Viral Hepatitis, Egypt.

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Editorial Note

This report describes Egypt's efforts to control HCV infection by addressing infection control in health-care facilities and providing care and treatment to persons living with chronic HCV infection. Findings indicate that the infection control programs have been widely introduced and successful in reducing HCV infections in MOHP facilities. In addition, Egypt's care and treatment program is one of the largest national programs in the world, providing subsidized care and treatment services and medications to nearly 190,000 Egyptians with chronic HCV infection during 2008–2011. Egypt's market-based approach to reduce the cost of treatment for HCV infection has been effective and can serve as a model for other resource-constrained countries with a large burden of viral hepatitis seeking to provide affordable care and treatment services.

The primary focus for hepatitis control in Egypt has been on care and treatment; these activities consume up to 20% of the MOHP budget. However, Egypt's success in reducing the cost of treatment (*9*) has improved access for persons with chronic HCV infection. Nonetheless, continued monitoring of treatment responses and collection of cost-effectiveness data are needed to identify best practices and areas for improvement.

Despite Egypt's implementation of the infection control program in MOHP facilities, which provide care to 30% of the population, the remainder of the health-care system (e.g., university and private facilities) lacks a comprehensive, standardized approach to infection control. Decreasing the incidence and transmission of HCV infection in Egypt necessitates wider application of infection control standards to all providers of health and dental care. Best practices and guidelines should be disseminated to health-care and dental-care institutions and providers throughout Egypt, with an emphasis on expanding the number of trained experts capable of supporting and overseeing this effort. Beginning in 2003, the Egyptian government increased annual expenditures to support infection control programs, and by 2011, approximately $800,000 was dedicated to infection control activities in MOHP facilities, which amounts to only 1% of government expenditures for viral hepatitis care and treatment; increasing investments in health-care–facility infection control are necessary to limit the spread of hepatitis C and other health-care–associated infections in the country.

What is already known on this topic?

Egypt has the largest burden of hepatitis C infection in the world, with a 10% prevalence of chronic hepatitis C virus (HCV) infection among persons aged 15–59 years. Health-care–associated transmission is a major contributor to HCV transmission in Egypt.

What is added by this report?

Implementation of an infection control program at Egyptian Ministry of Health and Population (MOPH) facilities resulted in improvements in infection control practices among health-care workers and a decrease in the annual incidence of HCV infection among dialysis patients (from 28% to 6%). In addition, Egypt's viral hepatitis care and treatment program, one of the largest national programs in the world, has provided subsidized care and treatment services to nearly 190,000 Egyptians with chronic HCV infection.

What are the implications for public health practice?

Despite the Egyptian government's efforts to control HCV transmission in health-care settings and to provide care and treatment to persons living with HCV infection in Egypt, Egypt continues to have a large and growing hepatitis C epidemic. A comprehensive viral hepatitis control program, including the expansion of the infection control program beyond MOHP facilities, raising community awareness, ensuring a safe blood supply, and establishing a viral hepatitis surveillance system, is needed to control the hepatitis C epidemic in Egypt.

Given the current substantial burden of HCV infection in Egypt, hepatitis C–related morbidity and mortality are predicted to at least double in the coming 20 years (*10*). Aware of the need to effectively control the hepatitis C epidemic, in 2011, MOHP requested the assistance of the World Health Organization, Institut Pasteur, and CDC in the formation of a technical advisory group consisting of local and international experts in viral hepatitis and public health. This group, which first met in July 2011, was tasked with examining the burden of viral hepatitis, reviewing current control efforts, and providing MOHP with independent guidance on addressing viral hepatitis in Egypt. Consistent with the recommendations of resolution 63.18* adopted by the World Health Assembly in 2010, the group recognized the need for a comprehensive approach to address all elements of viral hepatitis prevention and control, including increasing community awareness and education, preventing HCV and HBV infection in health-care settings, ensuring a safe blood supply, enhancing access to hepatitis B vaccination, establishing surveillance and monitoring to track the effectiveness of control programs, and providing

* Available at http://www.searo.who.int/linkfiles/diarrhoea,_ari_and_hepatitis_hepatitis-wha63.pdf.

care and treatment to those already infected. With the technical assistance and support from the World Health Organization, the Institut Pasteur, and CDC, MOHP is working to develop and implement an enhanced prevention and control strategy.

In the past decade, Egypt has made considerable progress in viral hepatitis control by implementing a national infection control program for MOHP facilities and establishing a national hepatitis C treatment program. To contain the HCV epidemic, Egypt must overcome major challenges, including the high cost of treatment and the large and growing number of persons living with chronic HCV infection. These challenges could be addressed by implementing a comprehensive viral hepatitis control program, including the expansion of the current infection control program beyond MOHP facilities, raising community awareness, and ensuring a safe blood supply. Establishment of a viral hepatitis surveillance system also is needed to guide implementation of prevention interventions and monitor their effectiveness. Upon implementation of a comprehensive viral hepatitis control program, Egypt can serve as a model for other highly endemic countries.

Acknowledgments

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Preconception Health Indicators Among Women — Texas, 2002–2010

The first few weeks after conception are the most critical for fetal development; because most women are not aware that they are pregnant until after this critical period, health-care interventions should begin before conception. Promoting preconception health is an essential component of any broad strategy to prevent adverse pregnancy outcomes. Women who are planning pregnancy or could become pregnant should have a preconception health evaluation and adopt appropriate health behaviors. The Pregnancy Risk Assessment Monitoring System (PRAMS) tracks maternal behaviors, experiences, and health conditions, including preconception health. PRAMS is a state-specific, population-based surveillance system. The Texas Department of State Health Services analyzed PRAMS responses regarding preconception health of Texas women who delivered a live-born infant during 2002–2010. Among women who responded, 48% had no health-care insurance coverage before pregnancy and 46% reported an unintended pregnancy. In addition, 45% of the women reported consuming alcohol during the 3 months before pregnancy, and 18% reported binge drinking. Differences in demographic and socioeconomic variables were observed for the majority of preconception health indicators. Compared with non-Hispanic white women, non-Hispanic black and Hispanic women reported a 20% higher prevalence of not consuming a daily multivitamin and of being physically inactive, and approximately twice the prevalence of prepregnancy diabetes. Women without health-care coverage (public or private) before pregnancy generally were more likely to report unfavorable behavioral characteristics and health conditions compared with women with health-care coverage, regardless of whether the pregnancy was planned or not. Targeted public health interventions addressing the observed disparities in the preconception health and health care of women in Texas are needed.

PRAMS is an ongoing, state- and population-based surveillance system that collects data regarding maternal behaviors, experiences, and health before, during, and after pregnancy (*1*). Since 2002, Texas birth certificate records have been used each month to select a stratified random sample of approximately 200 women who gave birth to a live-born infant within the prior 2–3 months, to whom a self-administered questionnaire* is then mailed. Up to three questionnaires are sent to those who do not respond. Women who do not respond to any of the survey attempts are contacted and interviewed by telephone. During 2002–2010, 22% of interviews were conducted by telephone. Contact efforts end when the women reach 9 months postpartum. A total of 26,435 birth records were selected and 16,035 mothers completed a survey. After excluding records for which race was categorized as "other," data from 15,386 respondents aged 13–47 years who delivered during 2002–2010 in Texas were analyzed. The analyses were restricted to Hispanics and non-Hispanic blacks and whites because of the heterogeneity and small sample size of other races/ethnicities. The mean weighted survey response rate during this 9-year period was 62% (range: 54%–67%), with no clear trend. Data were weighted to account for the complex sample design, nonresponse, and noncoverage (exclusion from the sampling frame). Prevalence estimates and crude prevalence ratios of preconception health indicators were calculated by race/ethnicity, education, age, health-care coverage before pregnancy, whether delivery was paid for by Medicaid, and whether the pregnancy was intended.† Alcohol consumption, smoking,§ and physical inactivity¶ were determined for the 3 months before pregnancy, and multivitamin use was determined for the month before pregnancy.**

A high proportion of respondents reported suboptimal preconception health indicators. Overall, 46% reported that their current pregnancy was unintended; 75% reported not taking daily multivitamins (63% reported not taking multivitamins at all) during the month before pregnancy; 17% reported smoking; 45% reported consuming alcohol, and 18% reported binge drinking; and 40% were physically inactive during the 3 months before pregnancy (Table 1). Poor health and poor access to health care also were reported. Reports of suboptimal preconception health†† included being underweight (5%), overweight (24%), obese (22%), or anemic (13%). Among surveyed women, 48% had no health-care coverage before pregnancy, and of those who had health-care coverage before pregnancy, 17% were covered through Medicaid.

* PRAMS questionnaires and additional information available at http://www.dshs.state.tx.us/mch/default.shtm#prams2.

† Unintended pregnancy was defined as not wanting to be pregnant then or anytime in the future, or wanting to become pregnant later.

§ Smoking and alcohol consumption were defined as ≥1 alcoholic drink or cigarette in a typical day during the 3 months before pregnancy.

¶ Physical inactivity was defined as <1 day per week of physical activities or exercise that lasts for 30 minutes or more during the 3 months before pregnancy.

** No daily multivitamin use during the month before pregnancy includes women who did not take a multivitamin or a prenatal vitamin at all, and those who took multivitamins but did not take them every day of the week.

†† Self-reported height and weight were used to calculate body mass index and categorize women into underweight (<18.5 kg/m^2), normal weight (≥18.5 kg/m^2 to <25 kg/m^2), overweight (≥25 kg/m^2 to <30 kg/m^2), and obese (≥30 kg/m^2) categories. Other health indicators, including anemia, hypertension, heart problems, and diabetes, were by self-report referring to the 3 months before pregnancy.

TABLE 1. Differences in self-reported preconception health indicators, by health-care coverage status before pregnancy, Medicaid status, and pregnancy intent of women (N = 15,386) who recently gave birth to a live-born infant — Texas Pregnancy Risk Assessment Monitoring System, 2002–2010

		Health-care coverage before pregnancy			Medicaid paid for delivery			Pregnancy intent		
	Total N = 15,386	Yes* N = 8,581 (52%)	No N = 6,794 (48%)		Yes N = 8,968 (59%)		No* N = 6,281 (41%)	Unintended[†] N = 7,323 (46%)		Intended* N = 7,821 (54%)
Indicator	% (95% CI)	% (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)
Behavioral factor										
No daily multivitamin[§]	**75.2 (74.3–76.2)**	67.9 (66.6–69.2)	83.2 (82.0–84.5)	1.2[¶] (1.2–1.3)	82.7 (81.6–83.8)	1.3[¶] (1.2–1.3)	64.7 (63.1–66.2)	85.6 (84.5–86.7)	1.3[¶] (1.26–1.32)	66.5 (65.2–67.9)
Physical inactivity**	**40.2 (38.7–41.7)**	37.2 (35.2–39.2)	43.0 (40.8–45.2)	1.2[††] (1.1–1.3)	43.7 (41.7–45.8)	1.3[¶] (1.2–1.4)	34.9 (32.7–37.1)	42.4 (40.2–44.7)	1.1[††] (1.0–1.2)	38.5 (36.5–40.5)
Smoking[§§]	**16.6 (15.8–17.4)**	14.9 (13.9–16.0)	18.4 (17.2–19.6)	1.2[††] (1.1–1.4)	19.5 (18.4–20.6)	1.6[¶] (1.4–1.7)	12.5 (11.4–13.5)	20.2 (18.9–21.4)	1.5[¶] (1.3–1.6)	13.6 (12.6–14.6)
Alcohol consumption[¶¶]	**45.1 (44.1–46.2)**	53.9 (52.5–55.3)	35.6 (34.0–37.2)	0.66[¶] (0.63–0.70)	35.9 (34.5–37.3)	0.61[¶] (0.59–0.65)	58.4 (56.8–60.1)	46.3 (44.7–47.9)	1.0[¶] (0.99–1.1)	44.4 (42.9–45.8)
Binge drinking***	**18.3 (17.5–19.2)**	20.3 (19.1–21.6)	16.2 (14.9–17.4)	0.80[††] (0.72–0.88)	16.5 (15.4-17.6)	0.79[††] (0.71–0.86)	21.0 (19.6-22.4)	21.1 (19.7–22.5)	1.3[¶] (1.2–1.4)	16.1 (15.0-17.2)
Health condition										
Underweight	**5.2 (4.7–5.7)**	4.7 (4.1–5.4)	5.9 (5.1–6.7)	1.2[††] (1.02–1.5)	6.1 (5.3–6.8)	1.5[††] (1.2–1.8)	4.1 (3.5–4.8)	6.1 (5.3–7.1)	1.4[††] (1.2–1.7)	4.4 (3.8–5.0)
Overweight	**24.2 (23.2–25.2)**	23.9 (22.6–25.1)	24.7 (23.1–26.3)	1.0 (0.95–1.1)	24.1 (22.8–25.5)	0.99 (0.91–1.1)	24.3 (22.9–25.8)	23.5 (22.0–24.9)	0.95 (.87–1.0)	24.8 (23.4–26.1)
Obese	**21.6 (20.7–22.5)**	20.1 (18.9–21.2)	23.5 (22.1–25.0)	1.2[††] (1.1–1.3)	23.5 (22.2–24.9)	1.2[¶] (1.1–1.4)	19.1 (17.8–20.4)	21.9 (20.5–23.3)	1.02 (.93–1.1)	21.5 (20.2–22.8)
Diabetes	**1.9 (1.6–2.1)**	1.8 (1.4–2.1)	2.0 (1.5–2.4)	1.1 (0.83–1.5)	2.2 (1.8–2.6)	1.5[¶] (1.1–2.1)	1.4 (1.1–1.8)	1.6 (1.3–2.0)	0.82 (.6–1.1)	2.0 (1.6–2.4)
Hypertension[†††]	**3.0 (2.6–3.4)**	3.2 (2.7–3.8)	2.7 (2.2–3.3)	0.85[¶] (0.65–1.1)	3.3 (2.7–3.8)	1.2 (0.95–1.6)	2.6 (2.1–3.2)	3.1 (2.5–3.7)	1.1 (.84–1.5)	2.8 (2.3–3.3)
Anemia[†††]	**12.6 (11.8–13.5)**	10.1 (9.2–11.1)	15.2 (13.9–16.5)	1.5[††] (1.3–1.7)	15.8 (14.6–17.0)	2.0[¶] (1.7–2.3)	8.01 (7.0–9.0)	16.4 (15.1–17.8)	1.7[¶] (1.5–2.0)	9.4 (8.4–10.4)

Abbreviations: CI = confidence interval; PR = prevalence ratio.
* Referent group.
† Unintended pregnancy was defined as "not wanting to be pregnant then or anytime in the future" or "wanting to become pregnant later."
§ No daily multivitamin use during the month before pregnancy includes women who did not take a multivitamin or prenatal vitamin at all, and those who took multivitamins but did not take them every day of the week.
¶ Association is statistically significant in multivariate models that included age, race/ethnicity, education, insurance, Medicaid, and pregnancy intent.
** Less than 1 day per week of physical activities or exercise lasting for 30 minutes or more during the 3 months before pregnancy. Data not available for 2002–2003 and 2009–2010.
†† Statistically significant.
§§ Smoking ≥1 cigarette in an average day during the 3 months before pregnancy.
¶¶ Consuming ≥1 alcoholic drink in an average day during the 3 months before pregnancy.
*** One or more instances of consuming ≥5 alcoholic drinks (changed to ≥4 starting in 2009) on one occasion during the 3 months before pregnancy.
††† Data not available for 2009–2010.

The unfavorable preconception health indicators varied considerably by demographic factors (Table 2). Compared with non-Hispanic white women, non-Hispanic black women and Hispanic women had a 50% and 30% higher prevalence, respectively, of obesity, and a 20% higher prevalence of physical inactivity, being overweight, and not consuming a daily multivitamin. The most striking racial/ethnic differences were observed for chronic medical conditions. Compared with non-Hispanic white women, non-Hispanic black women had three times the prevalence of hypertension and anemia and two times the prevalence of diabetes. Among Hispanic women, the prevalence of diabetes was 80% higher and the prevalence of anemia was 60% higher than among non-Hispanic white women. The prevalence of alcohol consumption and binge drinking during the 3 months before pregnancy were highest among groups of women who were non-Hispanic white, aged 20–34 years, had more than a high school education, had health-care coverage before pregnancy, had an unintended pregnancy, and for whom Medicaid did not pay for delivery.

TABLE 2. Differences in self-reported preconception health indicators among women (N =15,386) who recently gave birth to a live-born infant, by selected demographic characteristics — Texas Pregnancy Risk Assessment Monitoring System, 2002–2010

	Race/Ethnicity					Age group (yrs)					Education				
	White* N = 5,413 (37%)	Black N = 4,215 (11%)		Hispanic N = 5,758 (52%)		≤19 N = 2,262 (14%)		20–34* N = 11,201 (74%)	≥35 N = 1,923 (12%)		<High school diploma N = 4,120 (32%)		High school diploma N = 4,522 (28%)		>High school diploma* N = 6,655 (40%)
Indicator	% (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)
Behavioral factor															
No daily multivitamin[¶]	67.8 (66.2–69.3)	79.8 (78.4–81.3)	1.2[§] (1.1–1.2)	79.6 (78.2–81.1)	1.2[§] (1.1–1.2)	84.1 (81.9–86.3)	1.1[†] (1.1–1.14)	75.8 (74.7–76.8)	61.1 (58.1–64.1)	0.81[§] (0.77–0.85)	80.03 (78.3–81.7)	1.2[†] (1.17–1.24)	82.2 (80.6–83.8)	1.2[§] (1.2–1.3)	66.6 (65.1–68.1)
Physical inactivity**	36.1 (33.8–38.2)	43.9 (41.3–46.4)	1.2[§] (1.1–1.3)	42.5 (40.1–44.9)	1.2[†] (1.1–1.3)	35.7 (31.6–39.8)	0.85[§] (0.75–0.96)	42.1 (40.4–43.8)	33.6 (29.6–37.6)	0.81[§] (0.7–0.91)	41.4 (38.5–44.3)	1.2[†] (1.1–1.3)	46.8 (43.9–49.8)	1.3[§] (1.2–1.5)	35 (32.9–37.1)
Smoking[††]	27.2 (25.7–28.7)	14.8 (13.5–16.1)	0.54[§] (0.49–0.60)	9.4 (8.4–10.4)	0.34[§] (0.31–0.39)	18.0 (15.7–20.3)	1.04 (0.91–1.2)	17.2 (16.3–18.2)	10.8 (8.9–12.7)	0.63[§] (0.52–0.75)	14.5 (13.1–15.8)	1.1[§] (0.93–1.2)	23.1 (21.3–24.8)	1.7[§] (1.5–1.9)	13.7 (12.6–14.8)
Alcohol consumption[§§]	63.9 (62.3–65.5)	40.9 (39.1–42.7)	0.64[§] (0.61–0.67)	32.7 (31.0–34.3)	0.51[§] (0.48–0.54)	33.1 (30.3–36.1)	0.71[†] (0.64–0.76)	47.6 (46.4–48.8)	44.5 (41.4–47.6)	0.94[§] (0.87–1.0)	25.03 (23.2–26.9)	0.40[§] (0.37–0.44)	43.5 (41.4–45.6)	0.70[§] (0.67–0.74)	61.9 (60.4–63.5)
Binge drinking[¶¶]	25.4 (23.9–26.9)	12.0 (10.8–13.3)	0.47[§] (0.42–0.53)	14.6 (13.4–15.9)	0.58[§] (0.52–0.64)	15.9 (13.6–18.2)	0.81[†] (0.69–0.94)	19.6 (18.6–20.7)	13.0 (10.9–15.2)	0.66[§] (0.56–0.79)	11.9 (10.5–13.3)	0.54[§] (0.47–0.61)	20.0 (18.3–21.8)	0.89 (0.81–1.0)	22.2 (20.8–23.6)
Health condition and health care															
Underweight	6.1 (5.3–6.9)	4.9 (4.1–5.7)	0.80[§] (0.65–0.99)	4.5 (3.8–5.3)	0.74[§] (0.61–0.92)	10.8 (8.9–12.8)	2.3[§] (1.9–2.9)	4.7 (4.1–5.2)	2.2 (1.3–3.0)	0.47[§] (0.31–0.7)	6.3 (5.2–7.5)	1.5[†] (1.2–1.9)	5.8 (4.8–6.7)	1.4[†] (1.1–1.7)	4.2 (3.6–4.9)
Overweight	21.6 (20.2–23.0)	26.3 (24.6–28.1)	1.2[§] (1.1–1.3)	25.9 (24.3–27.6)	1.2[§] (1.1–1.3)	18.04 (15.6–20.5)	0.73[§] (0.63–0.84)	24.7 (23.6–25.9)	28.6 (25.6–31.5)	1.2[§] (1.03–1.3)	24.5 (22.4–26.6)	1.04 (0.94–1.2)	25.1 (23.2–26.9)	1.1 (0.97–1.2)	23.5 (22.2–24.9)
Obese	18.1 (16.8–19.4)	26.9 (25.3–28.5)	1.5[§] (1.4–1.6)	23.2 (21.6–24.8)	1.3[§] (1.2–1.4)	11.8 (9.8–13.9)	0.52[§] (0.44–0.62)	22.7 (21.6–23.8)	26.1 (23.3–29.1)	1.1[§] (1.01–1.3)	21.4 (19.4–23.3)	1.1 (0.96–1.2)	24.5 (22.6–26.4)	1.2[§] (1.1–1.4)	19.9 (18.6–21.2)
Diabetes	1.2 (0.87–1.6)	2.5 (1.9–3.0)	2.0[§] (1.4–2.9)	2.2 (1.7–2.7)	1.8[†] (1.3–2.6)	0.81 (0.3–1.3)	0.45[§] (0.24–0.86)	1.8 (1.5–2.1)	3.8 (2.6–4.9)	2.1[§] (1.5–3.1)	2.6 (1.9–3.2)	1.5[§] (1.1–2.2)	1.4 (0.95–1.9)	0.86 (0.58–1.3)	1.7 (1.3–2.0)
Hypertension***	2.2 (1.7–2.7)	7.03 (5.9–8.1)	3.2[§] (2.4–4.3)	2.7 (2.1–3.3)	1.2 (0.87–1.7)	3.1 (1.8–4.3)	1.2 (0.77–1.8)	2.6 (2.2–3.1)	5.6 (4.1–7.1)	2.2[§] (1.6–3.1)	3.5 (2.6–4.3)	1.3[§] (0.91–1.7)	2.8 (2.1–3.5)	1.0 (0.73–1.4)	2.8 (2.2–3.3)
Anemia***	8.2 (7.2–9.3)	24.9 (23.1–26.7)	3.0[§] (2.6–3.5)	13.1 (11.8–14.5)	1.6[†] (1.4–1.9)	17.2 (14.7–19.8)	1.4[†] (1.2–1.7)	12.3 (11.4–13.2)	8.9 (6.8–11.1)	0.72[†] (0.57–0.92)	16.6 (14.8–18.3)	2.1[§] (1.7–2.3)	14.1 (12.5–15.7)	1.7[§] (1.4–2.1)	8.3 (7.4–9.3)
No health-care coverage before pregnancy	29.3 (27.8–30.8)	39.5 (37.7–41.3)	1.4[§] (1.3–1.4)	63.2 (61.6–64.8)	2.2[§] (2.0–2.3)	49.2 (46.2–52.1)	0.99[§] (0.93–1.1)	49.5 (48.3–50.7)	36.5 (33.4–39.6)	0.74[†] (0.68–0.81)	69.6 (67.7–71.5)	2.8[§] (2.7–3.0)	56.9 (54.9–58.9)	2.3[§] (2.2–2.5)	24.7 (23.3–26.1)

Abbreviations: CI = confidence interval; PR = prevalence ratio.

* Referent group.

† Statistically significant.

§ Association is statistically significant in multivariate models that included age, race/ethnicity, education, insurance, Medicaid, and pregnancy intent.

¶ No daily multivitamin use during the month before pregnancy includes women who did not take a multivitamin or prenatal vitamin at all, and those who took multivitamins but did not take them every day of the week.

** Less than 1 day per week of physical activities or exercise for 30 minutes or more during the 3 months before pregnancy. Data not available for 2002–2003 and 2009–2010.

†† Smoking ≥1 or more cigarette on an average day during the 3 months before pregnancy.

§§ Consuming ≥1 or more alcoholic drink in an average day during the 3 months before pregnancy.

¶¶ One or more instances of consuming ≥5 alcoholic drinks (changed to ≥4 starting in 2009) on one occasion during the 3 months before pregnancy.

*** Data not available for 2009–2010.

Within the surveyed population, 59% of women reported that Medicaid paid for delivery. Medicaid paid for deliveries among women with incomes ≤185% of the federal poverty level. Women for whom Medicaid paid for delivery and those who did not have health-care coverage before pregnancy had a higher prevalence of smoking, physical inactivity, not consuming daily multivitamins, and adverse health conditions (Table 1). Among women with an intended pregnancy, lack of health-care coverage before pregnancy was associated with a 70% higher prevalence of anemia, 50% higher prevalence of being underweight, 30% higher prevalence of obesity and not consuming daily multivitamins, and 20% higher prevalence of physical inactivity (Table 3). For women with unintended pregnancies, lack of health-care coverage before pregnancy was associated with slightly higher prevalences of no daily multivitamin use, smoking, overweight, and anemia. During 2002–2010, statistically significant increases over time were observed in health-care coverage before pregnancy (52% to 59%), binge drinking (15% to 21%), and obesity (17% to 24%). In multivariate models that controlled for age, race/ethnicity, education, and pregnancy intent, Medicaid-paid deliveries predicted higher levels of anemia, diabetes, obesity, smoking, physical inactivity, and lower levels of daily multivitamin consumption, compared with deliveries that were not paid for by Medicaid.

TABLE 3. Effect of health-care coverage status on self-reported preconception health indicators among women who recently gave birth to a live-born infant, by pregnancy intent — Texas Pregnancy Risk Assessment Monitoring System, 2002–2010

	Unintended pregnancy*			Intended pregnancy		
	No health-care coverage		Health-care coverage†	No health-care coverage		Health-care coverage†
Indicator	% (95% CI)	PR (95% CI)	% (95% CI)	% (95% CI)	PR (95% CI)	% (95% CI)
Behavioral factor						
No daily multivitamin§	88.3 (86.8–89.8)	1.1¶ (1.04–1.1)	82.4 (80.7–84.1)	77.8 (75.8–79.9)	1.3¶ (1.3–1.4)	58.3 (56.5–60.1)
Physical inactivity**	44.3 (41.2–47.3)	1.1 (0.99–1.2)	39.8 (36.5–43.0)	41.8 (38.6–45.1)	1.2¶ (1.1–1.3)	35.7 (33.2–38.3)
Smoking††	21.9 (20.1–23.8)	1.2¶ (1.1–1.4)	18.1 (16.3–19.8)	14.7 (13.1–16.3)	1.2 (1.0–1.3)	12.7 (11.5–14.0)
Alcohol consumption§§	40.8 (38.6–43.1)	0.78¶ (0.72–0.83)	52.7 (50.4–55.1)	30.1 (27.9–32.3)	0.55¶ (0.51–0.61)	54.8 (52.9–56.7)
Binge drinking¶¶	19.4 (17.5–21.3)	0.84¶ (0.73–0.95)	23.1 (21.1–25.2)	13.0 (11.3–14.6)	0.70¶ (0.61–.82)	18.4 (16.9–19.9)
Health condition						
Underweight	6.1 (5.1–7.2)	0.98 (0.75–1.3)	6.2 (5.0–7.4)	5.5 (4.3–6.7)	1.5¶ (1.1–2.1)	3.8 (3.0–4.5)
Overweight	25.1 (23.0–27.3)	1.2¶ (1.03–1.3)	21.7 (19.8–23.6)	24.3 (22.1–26.7)	0.97 (0.86–1.1)	25.0 (23.4–26.7)
Obese	22.8 (20.8–24.8)	1.1 (0.96–1.2)	20.9 (19.0–22.8)	24.5 (22.1–26.8)	1.3¶ (1.1–1.4)	19.6 (18.1–21.2)
Diabetes	1.7 (1.1–2.3)	1.1 (0.69–1.7)	1.6 (1.1–2.1)	2.2 (1.6–2.9)	1.2 (0.81–1.8)	1.9 (1.4–2.4)
Hypertension***	2.6 (1.9–3.4)	0.71 (0.49–1.0)	3.7 (2.7–4.7)	2.8 (1.9–3.6)	0.97 (0.66–1.4)	2.8 (2.2–3.5)
Anemia***	17.8 (15.9–19.8)	1.2¶ (1.03–1.4)	14.6 (12.8–16.5)	12.2 (10.4–13.9)	1.7¶ (1.4–2.1)	7.3 (6.2–8.4)

Abbreviations: CI = confidence interval; PR = prevalence ratio.
* Unintended pregnancy was defined as "not wanting to be pregnant then or anytime in the future" or "wanting to become pregnant later."
† Referent group.
§ No daily multivitamin use during the month before pregnancy includes women who did not take a multivitamin or prenatal vitamin at all, and those who took multivitamins but did not take them every day of the week.
¶ Statistically significant.
** Less than 1 day per week of physical activities or exercise for 30 minutes or more during the 3 months before pregnancy. Data not available for 2002–2003 and 2009–2010.
†† Smoking ≥1 cigarette during an average day during the 3 months before pregnancy.
§§ Consuming ≥1 alcoholic drink during an average day during the 3 months before pregnancy.
¶¶ One or more instances of consuming ≥5 alcoholic drinks (changed to ≥4 starting in 2009) on one occasion during the 3 months before pregnancy.
*** Data not available for 2009–2010.

CDC recommends a minimum response rate of 65% for minimal nonresponse bias. Because PRAMS response rates in Texas were lower than the CDC-recommended levels, key demographic variables for responders and nonresponders were compared. Response rates were lowest among non-Hispanic black women (48%), women with a high school education or less (55%), and younger women (54% and 58% for women aged ≤19 years and 20–34 years, respectively).

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Editorial Note

Every health-care visit provides an opportunity to assess and address unhealthy behaviors and health conditions known to adversely affect pregnancy outcomes. Therefore, access to health care and use of health-care services are crucial for improving women's pregnancy outcomes. Nearly half (48%) of Texas women surveyed by PRAMS did not have any health-care coverage before their pregnancy. Of the 52% of women who did have health-care coverage before pregnancy, 17% had

What is already known on this topic?

The first few weeks after conception are the most critical for fetal development; because most women are not aware that they are pregnant until after this critical period, health-care interventions should begin before conception.

What is added by this report?

Among Texas women surveyed during 2002–2010 who had given birth recently, 75% reported not taking multivitamins on a daily basis during the month before pregnancy; of those who did not have health-care coverage before pregnancy, 83% did not take daily multivitamins. Among Hispanic women, only 35% had health-care coverage before pregnancy. Even women who had health-care coverage and an intended pregnancy had suboptimal preconception health indicators.

What are the implications for public health practice?

Based on data from this study, the preconception health status of women in Texas could be improved by promoting access to and use of preconception care and continuing to monitor indicators such as these for evidence of improvement.

coverage through Medicaid, and 59% of all deliveries in Texas were paid for by Medicaid. Women who qualify for Medicaid at delivery are low-income women who often are at greatest risk for adverse pregnancy outcomes, and most in need of essential preconception care services. This gap in coverage means that low-income women who cannot afford preconception care, but who are at greatest risk for adverse pregnancy outcomes, are missing essential preconception care services. Ensuring access to subsidized preconception health-care services for low-income women might help to close this gap between the time Medicaid coverage begins at delivery and the time preconception health care is most needed, before pregnancy begins.

Hispanic women accounted for 50% of live-births in Texas in 2009 (*2*), but only 37% of Hispanic women had health-care coverage before conception. Given the rapidly increasing Hispanic population in Texas, more efforts and outreach are needed to enroll low-income women, especially Hispanics, in Medicaid before they become pregnant.

However, even some of the women in Texas who had health-care coverage and a planned pregnancy also had some preconception health indicators (e.g., obesity, smoking, and limited multivitamin use) that could be improved. Therefore, having access to health-care does not ensure that women will seek it or that they will receive the appropriate content of preconception care. In the U.S. health-care system, preconception care has not received as much attention as care received during pregnancy (*3*). A two-pronged approach would be ideal to address these issues. First, women need to have access to preconception health-care services. Second, effective implementation and use of preconception health-care services by women and their providers could be attained through training and targeted educational messages. Since CDC's publication in 2006 of recommendations to improve preconception health (*4*), numerous efforts have been initiated to support this goal (*5*). Texas was one of seven states represented on a committee convened in 2007 to propose measurable preconception health indicators at the state level (*6*). In 2011, the Texas legislature appropriated $4.1 million for the Texas Department of State Health Services to fund the Healthy Texas Babies initiative. The purpose of the initiative is to decrease infant mortality by implementing evidence-based interventions at the community level. The primary goal of this initiative is to reduce the preterm birth rate by 8% over 2 years and save $7.2 million in Medicaid costs for that period.

Despite major advances in prenatal care, the incidence of adverse pregnancy outcomes is higher in the United States than in most developed countries (*7*). The first few weeks after conception are the most critical for fetal development; because most women are not aware that they are pregnant until after this critical period, health-care interventions should begin before conception. CDC recommendations call for providing risk assessment and counseling to all women of childbearing age during primary care visits (*4*). The findings in this report indicate that Texas women often have risk behaviors and chronic medical conditions during the preconception period that place them at increased risk for adverse pregnancy outcomes. Because 46% of pregnancies in Texas were unintended, it is important for women of childbearing age to receive preconception care during encounters with the health-care system. However, a sizeable percentage of women who had a planned pregnancy and health-care coverage also had unfavorable preconception health indicators, suggesting that the presence of health-care coverage does not ensure necessarily that it is used appropriately. Education messages targeting health-care providers and women of reproductive age are needed to close the gap. The 2006 CDC recommendations call for increasing consumer awareness through use of information and tools appropriate across varying age, literacy, and cultural/linguistic contexts (*4*).

The findings in the report are subject to at least three limitations. First, the Texas PRAMS average response rate during 2002–2010 was 62%; CDC sets a response rate threshold of 65% for minimal nonresponse bias. Despite the fact that data are weighted to account for nonresponse, this does not eliminate the possibility of nonresponse bias. However, because the response rates were lower among women who were younger, black, or had less education, and these are the groups of women that have worse preconception health profiles, the actual preconception health status of women in Texas is likely less favorable and the disparities greater than reported here. Second, PRAMS data are self-reported and subject to recall bias and other biases inherent in self-reported survey data. Finally, results are generalizable only to women who recently delivered a live-born infant and not to all women of childbearing age. Despite these limitations, PRAMS is a useful tool for monitoring progress toward improving preconception health through effective policies and interventions (*8*).

Although CDC and several national organizations provide recommendations and practice guidelines for preconception care, Texas levels of preconception indicators have not improved over time and are suboptimal compared with the *Healthy People 2020* targets of 33.1% daily multivitamin intake and 100% abstinence from binge drinking.[§§] Evidence-based preconception interventions that require access to costly services are useful only if women have health care providing those services to them. Providing preconception health care at any encounter with the health-care system to all women who can become pregnant might improve pregnancy outcomes in Texas.

[§§] MICH-16.2 and MICH-11.2. Additional information available at http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=26.

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Trends in HIV-Related Risk Behaviors Among High School Students — United States, 1991–2011

On July 24, 2012, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

One of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce the number of persons who become infected with human immunodeficiency virus (HIV) (*1*). In 2009, persons aged 15–29 years comprised 21% of the U.S. population but accounted for 39% of all new HIV infections (*2*). Sexual intercourse, sexual intercourse with multiple partners, sexual intercourse without using a condom, and injection drug use are behaviors that increase risk for HIV infection. To describe trends in the prevalence of HIV-related risk behaviors among high school students, CDC analyzed data from the biennial national Youth Risk Behavior Survey (YRBS) for the period 1991–2011. The results of that analysis indicated that, although the percentage of students overall who had ever had sexual intercourse decreased significantly from 54.1% in 1991 to 47.4% in 2011, the prevalence of ever having had sexual intercourse did not change significantly after reaching 45.6% in 2001. Similarly, although the percentage of students who had four or more sex partners decreased significantly from 18.7% in 1991 to 15.3% in 2011, the prevalence of having four or more sex partners did not change significantly after reaching 14.2% in 2001. Condom use at most recent sexual intercourse among students currently having sexual intercourse increased from 46.2% in 1991 to 60.2% in 2011. However, the prevalence of condom use did not change significantly beginning in 2003 (63.0%). The prevalence of injection drug use among students overall did not change significantly from 1995 (2.1%) to 2011 (2.3%). The results suggest that progress in reducing some HIV-related risk behaviors among high school students overall and in certain populations did not change significantly in the past decade. To reduce the number of young persons who become infected with HIV, renewed educational efforts and other risk reduction interventions are warranted.

The national YRBS, a component of CDC's Youth Risk Behavior Surveillance System, used independent, three-stage cluster samples for the 1991–2011 biennial surveys to obtain cross-sectional data representative of public and private school students in grades 9–12 in all 50 states and the District of Columbia (*3*). Sample sizes in the surveys ranged from 10,904 to 16,410. School response rates ranged from 70% to 81%, student response rates ranged from 83% to 90%, and overall response rates* ranged from 60% to 71%.

For each survey, students completed anonymous, self-administered questionnaires that included identically worded questions about their sexual experience, number of sexual intercourse partners, current sexual intercourse, condom use, and injection drug use.† Sexual experience was defined as ever having had sexual intercourse. Having multiple sex partners was defined as having sexual intercourse with four or more persons during their life. Current sexual activity was defined as having sexual intercourse with at least one person during the 3 months before the survey. Condom use was defined as using a condom during the most recent sexual intercourse among currently sexually active students. Injection drug use was defined as using a needle to inject any illegal drug into their body one or more times during their life. Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

Data were weighted to provide national estimates, and the statistical software used for all analyses accounted for the complex sample design. Changes over time during 1991–2011 were analyzed using logistic regression analyses that controlled for sex, race/ethnicity, and grade and simultaneously assessed significant ($p<0.05$) linear and quadratic time effects.§ T-tests were used to test for significant ($p<0.05$) differences between prevalence estimates for 2009 and those for 2011.

During 1991–2011, a significant linear decrease occurred in the prevalence of sexual experience overall and among male, female, black, and white high school students (overall: 54.1% to 47.4%; male: 57.4% to 49.2%; female: 50.8% to 45.6%; black: 81.5% to 60.0%; and white: 50.0% to 44.3%) (Table). Among Hispanic students, no significant change was detected. Overall and among male and white students a significant

* Overall response rate = (number of participating schools/number of eligible sampled schools) x (number of usable questionnaires/number of eligible students sampled).

† The YRBS questions were as follows: "Have you ever had sexual intercourse?" "During your life, with how many people have you had sexual intercourse?" "During the past 3 months, with how many people did you have sexual intercourse?" "The last time you had sexual intercourse, did you or your partner use a condom?" and "During your life, how many times have you used a needle to inject any illegal drug into your body?" The wording of the question on injection drug use changed substantially after the 1993 survey, so 1991 and 1993 data on injection drug use are not included in this report.

§ A quadratic time effect indicates a significant but nonlinear trend in prevalence over time. Whereas a linear trend is depicted with a straight line, a quadratic trend is depicted with a curve with one bend. A temporal change that includes a significant linear and quadratic time effect demonstrates nonlinear variation (e.g., leveling off or change in direction of prevalence) in addition to an overall increase or decrease in prevalence over time.

quadratic trend also occurred. Overall, the prevalence of sexual experience decreased during 1991–2001 and then did not change significantly during 2001–2011 (54.1% to 45.6%, and then 47.4%). Among male students, the prevalence of sexual experience decreased during 1991–1997 and then did not change significantly during 1997–2011 (57.4% to 48.9% and then 49.2%), and among white students the prevalence of sexual experience decreased during 1991–2003 and then did not change significantly during 2003–2011 (50.0% to 41.8% and then 44.3%). The prevalence of sexual experience was lower in 2011 compared with 2009 among black students (65.2% to 60.0%), but not but not overall or among either sex or any other racial/ethnic population.

A significant linear decrease occurred during 1991–2011 in the prevalence of having four or more sex partners overall and among male, female, black, and white high school students (overall: 18.7% to 15.3%; male: 23.4% to 17.8%; female: 13.8% to 12.6%; black: 43.1% to 24.8%; and white: 14.7% to 13.1%) (Table, Figure 1). Among Hispanic students, no significant change was detected. Overall and among male and white students a significant quadratic trend also occurred. Overall, the prevalence of having four or more sex partners decreased during 1991–2001 and then did not change significantly during 2001–2011 (18.7% to 14.2% and then 15.3%). Among male students, the prevalence of having four or more sex partners decreased during 1991–2005 and then did not change significantly during 2005–2011 (23.4% to 16.5% and then 17.8%), and among white students the prevalence of having four or more sex partners decreased during 1991–2003 and then did not change significantly during 2003–2011 (14.7% to 10.8% and then 13.1%). The prevalence of having four or more sex partners was higher in 2011 compared with 2009 among white students (13.1% to10.5%), but not overall or among either sex or any other racial/ethnic population.

During 1991–2011, a significant linear decrease occurred in the prevalence of current sexual activity overall and among

TABLE. Percentage of high school students who reported HIV-related risk behaviors, by sex, race/ethnicity, and survey year — Youth Risk Behavior Surveys, United States, 1991–2011

Characteristic	Survey year	Ever had sexual intercourse		Had sexual intercourse with four or more persons during their life		Currently sexually active*		Condom use†		Ever injected and illegal drug§	
		%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Total	1991	54.1	(50.5–57.8)	18.7	(16.6–21.0)	37.5	(34.3–40.7)	46.2	(42.8–49.6)	NA	—
	1993	53.0	(50.2–55.8)	18.7	(16.8–20.9)	37.5	(35.4–39.7)	52.8	(50.0–55.6)	NA	—
	1995	53.1	(48.4–57.7)	17.8	(15.2–20.7)	37.9	(34.4–41.5)	54.4	(50.7–58.0)	2.1	(1.6–2.6)
	1997	48.4	(45.2–51.6)	16.0	(14.6–17.5)	34.8	(32.6–37.2)	56.8	(55.2–58.4)	2.1	(1.7–2.7)
	1999	49.9	(46.1–53.7)	16.2	(13.7–19.0)	36.3	(32.7–40.0)	58.0	(53.6–62.3)	1.8	(1.4–2.2)
	2001	45.6	(43.2–48.1)	14.2	(13.0–15.6)	33.4	(31.3–35.5)	57.9	(55.6–60.1)	2.3	(2.0–2.7)
	2003	46.7	(44.0–49.4)	14.4	(12.9–16.1)	34.3	(32.1–36.5)	63.0	(60.5–65.5)	3.2	(2.1–4.7)
	2005	46.8	(43.4–50.2)	14.3	(12.8–15.8)	33.9	(31.4–36.6)	62.8	(60.6–64.9)	2.1	(1.8–2.4)
	2007	47.8	(45.1–50.6)	14.9	(13.4–16.5)	35.0	(32.8–37.2)	61.5	(59.4–63.6)	2.0	(1.5–2.7)
	2009	46.0	(42.9–49.2)	13.8	(12.4–15.4)	34.2	(31.9–36.5)	61.1	(59.0–63.1)	2.1	(1.8–2.5)
	2011	47.4	(45.0–49.9)¶**	15.3	(14.2–16.4)¶**	33.7	(31.8–35.7)¶	60.2	(57.5–62.9)¶**	2.3	(1.9–2.7)
Sex											
Male	1991	57.4	(53.1–61.5)	23.4	(20.4–26.7)	36.8	(33.3–40.3)	54.5	(50.5–58.4)	NA	—
	1993	55.6	(52.0–59.2)	22.3	(19.6–25.2)	37.5	(34.5–40.7)	59.2	(55.3–63.0)	NA	—
	1995	54.0	(49.0–58.8)	20.9	(18.3–23.7)	35.5	(32.0–39.2)	60.5	(56.0–64.9)	3.0	(2.4–3.7)
	1997	48.9	(45.4–52.3)	17.6	(16.1–19.2)	33.4	(30.8–36.1)	62.5	(59.6–65.3)	2.6	(2.0–3.3)
	1999	52.2	(48.0–56.2)	19.3	(15.8–23.3)	36.2	(32.3–40.2)	65.5	(61.0–69.8)	2.8	(2.1–3.8)
	2001	48.5	(45.8–51.3)	17.2	(15.7–18.9)	33.4	(31.0–35.8)	65.1	(62.2–67.9)	3.1	(2.7–3.6)
	2003	48.0	(44.6–51.4)	17.5	(15.3–19.9)	33.8	(31.3–36.5)	68.8	(66.0–71.4)	3.8	(2.7–5.4)
	2005	47.9	(44.4–51.5)	16.5	(14.8–18.4)	33.3	(30.7–36.0)	70.0	(66.7–73.0)	3.0	(2.6–3.6)
	2007	49.8	(46.7–52.9)	17. 9	(16.0–20.0)	34.3	(32.0–36.7)	68.5	(65.4–71.4)	2.6	(2.0–3.4)
	2009	46.1	(41.5–50.9)	16.2	(13.7–19.1)	32.6	(29.4–36.0)	68.6	(66.0–71.2)	2.7	(2.1–3.4)
	2011	49.2	(46.6–51.8)¶**	17.8	(16.2–19.4)¶**	33.3	(31.1–35.6)¶	67.0	(63.5–70.3)¶**	2.9	(2.4–3.4)
Female	1991	50.8	(46.7–54.9)	13.8	(12.1–15.7)	38.2	(34.7–41.8)	38.0	(33.7–42.5)	NA	—
	1993	50.2	(47.5–52.8)	15.0	(13.2–17.0)	37.5	(35.7–39.3)	46.0	(43.2–49.0)	NA	—
	1995	52.1	(46.9–57.2)	14.4	(11.1–18.5)	40.4	(36.1–44.8)	48.6	(43.3–53.9)	1.0	(0.6–1.7)
	1997	47.7	(43.9–51.5)	14.1	(12.3–16.3)	36.5	(33.8–39.3)	50.8	(47.7–53.8)	1.5	(0.9–2.5)
	1999	47.7	(43.5–51.9)	13.1	(11.0–15.5)	36.3	(32.2–40.7)	50.7	(44.8–56.6)	0.7	(0.5–1.1)
	2001	42.9	(401.–45.8)	11.4	(10.0–13.0)	33.4	(30.9–35.9)	51.3	(47.8–54.9)	1.6	(1.2–2.1)
	2003	45.3	(42.6–48.0)	11.2	(9.8–12.7)	34.6	(32.5–36.8)	57.4	(54.2–60.5)	2.5	(1.4–4.2)
	2005	45.7	(42.0–49.4)	12.0	(10.4–13.7)	34.6	(31.5–37.7)	55.9	(53.0–58.8)	1.1	(0.8–1.6)
	2007	45.9	(43.1–48.6)	11.8	(10.5–13.1)	35.6	(332.–38.1)	54.9	(51.8–58.1)	1.3	(0.8–2.2)
	2009	45.7	(43.0–48.5)	11.2	(10.1–12.4)	35.6	(33.4–38.0)	53.9	(51.4–56.4)	1.4	(1.2–1.8)
	2011	45.6	(43.0–48.3)¶	12.6	(11.4–14.0)¶	34.2	(32.1–36.4)¶	53.6	(50.6–56.4)¶**	1.6	(1.3–2.0)

See table footnotes on page 558.

male, female, and black high school students (overall: 37.5% to 33.7%; male: 36.8% to 33.3%; female: 38.2% to 34.2%; and black: 59.3% to 41.3%) (Table). Among Hispanic and white students, no significant change was detected. The prevalence of current sexual activity was lower in 2011 (41.3%) compared with 2009 (47.7%) among black students, but not overall or among either sex or any other racial/ethnic population.

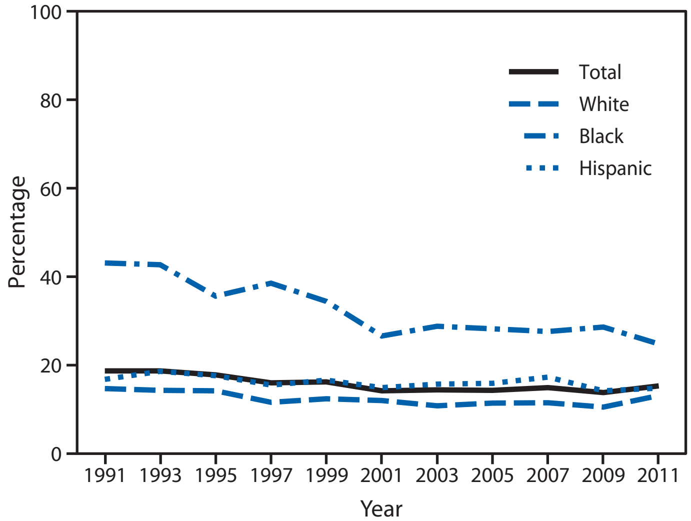
A significant linear increase occurred during 1991–2011 in the prevalence of condom use among currently sexually active students overall and among both sexes and all three racial/ethnic populations (overall: 46.2% to 60.2%; male: 54.5% to 67.0%; female: 38.0% to 53.6%; black: 48.0% to 65.3%; Hispanic: 37.4% to 58.4%; and white: 46.5% to 59.5%) (Table, Figure 2). In addition, a significant quadratic trend occurred overall and among both sexes and all three racial/ethnic populations. Overall and among female and white students, condom use increased during 1991–2003 and then did not change significantly during 2003–2011 (overall: 46.2% to 63.0% and then 60.2%; female: 38.0% to 57.4% and then 53.6%; and white: 46.5% to 62.5% and then 59.5%). Among male students, condom use increased during 1991–2005 and then did not change significantly during 2005–2011 (54.5% to 70.0% and then 67.0%). Among Hispanic students, condom use increased during 1991–2007 and then did not change

TABLE. (*Continued*) Percentage of high school students who reported HIV-related risk behaviors, by sex, race/ethnicity, and survey year — Youth Risk Behavior Surveys, United States, 1991–2011

Characteristic	Survey year	Ever had sexual intercourse		Had sexual intercourse with four or more persons during their life		Currently sexually active*		Condom use†		Ever injected and illegal drug§	
		%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Race/Ethnicity††											
Black	1991	81.5	(78.0–84.5)	43.1	(39.5–46.7)	59.3	(55.3–63.1)	48.0	(44.1–51.9)	NA	—
	1993	79.7	(76.2–82.7)	42.7	(38.8–46.7)	59.1	(54.6–63.5)	56.5	(52.6–60.3)	NA	—
	1995	73.4	(68.4–77.8)	35.6	(31.2–40.3)	54.2	(49.4–59.0)	66.1	(61.0–70.9)	1.1	(0.6–2.0)
	1997	72.7	(69.7–75.4)	38.5	(34.9–42.3)	53.6	(50.3–56.9)	64.0	(61.0–66.8)	1.0	(0.5–2.0)
	1999	71.2	(62.2–78.8)	34.4	(24.7–45.7)	53.0	(43.8–62.0)	70.0	(64.1–75.2)	0.9	(0.5–1.6)
	2001	60.8	(53.9–67.4)	26.6	(22.9–30.6)	45.6	(40.1–51.2)	67.1	(63.4–70.6)	1.6	(1.0–2.5)
	2003	67.3	(63.7–70.6)	28.8	(26.3–31.5)	49.0	(46.0–52.0)	72.8	(68.8–76.4)	2.4	(1.5–3.9)
	2005	67.6	(64.4–70.7)	28.2	(25.6–30.9)	47.4	(44.7–50.1)	68.9	(65.0–72.5)	1.7	(0.9–3.0)
	2007	66.5	(63.0–69.9)	27.6	(24.8–30.6)	46.0	(42.3–49.7)	67.3	(62.6–71.6)	1.8	(1.2–2.6)
	2009	65.2	(62.0–68.3)	28.6	(25.5–32.0)	47.7	(44.2–51.2)	62.4	(57.9–66.8)	2.4	(1.7–3.4)
	2011	60.0	(56.6–63.4)¶	24.8	(22.4–27.3)¶	41.3	(38.4–44.3)¶	65.3	(60.4–69.9)¶**	2.4	(1.7–3.5)¶
White	1991	50.0	(46.7–53.4)	14.7	(13.0–16.7)	33.9	(31.1–36.9)	46.5	(41.8–51.2)	NA	—
	1993	48.4	(45.6–51.3)	14.3	(12.3–16.6)	34.0	(31.9–36.2)	52.3	(48.2–56.3)	NA	—
	1995	48.9	(43.8–54.1)	14.2	(11.8–16.8)	34.8	(30.8–39.0)	52.5	(48.4–56.6)	2.0	(1.5–2.7)
	1997	43.6	(39.4–48.0)	11.6	(10.2–13.2)	32.0	(29.0–35.3)	55.8	(53.8–57.8)	1.8	(1.4–2.4)
	1999	45.1	(41.1–49.2)	12.4	(10.4–14.7)	33.0	(29.6–36.5)	55.0	(49.8–60.2)	1.6	(1.2–2.1)
	2001	43.2	(40.7–45.8)	12.0	(10.6–13.5)	31.3	(29.0–33.6)	56.8	(53.7–59.9)	2.4	(2.0–2.9)
	2003	41.8	(39.0–44.5)	10.8	(9.4–12.4)	30.8	(28.7–32.9)	62.5	(59.2–65.6)	2.5	(1.5–4.3)
	2005	43.0	(38.8–47.3)	11.4	(9.7–13.3)	32.0	(28.7–35.5)	62.6	(60.0–65.2)	1.9	(1.6–2.3)
	2007	43.7	(40.5–47.0)	11.5	(9.6–13.7)	32.9	(30.3–35.5)	59.7	(56.8–62.5)	1.5	(1.0–2.3)
	2009	42.0	(37.9–46.3)	10.5	(9.0–12.3)	32.0	(28.8–35.3)	63.3	(60.4–66.1)	1.6	(1.2–2.1)
	2011	44.3	(41.1–47.4)¶**	13.1	(11.7–14.5)¶**	32.4	(29.7–35.3)	59.5	(55.4–63.5)¶**	1.9	(1.6–2.3)
Hispanic	1991	53.1	(49.4–56.7)	16.8	(14.3–19.7)	37.0	(33.4–40.8)	37.4	(31.3–44.0)	NA	—
	1993	56.0	(51.8–60.2)	18.6	(15.7–22.0)	39.4	(35.6–43.3)	46.1	(41.6–50.6)	NA	—
	1995	57.6	(48.6–66.1)	17.6	(14.1–21.7)	39.3	(32.3–46.8)	44.4	(33.4–56.0)	2.2	(1.4–3.4)
	1997	52.2	(48.4–55.8)	15.5	(13.2–18.1)	35.4	(31.5–39.5)	48.3	(42.6–54.0)	2.2	(1.6–2.9)
	1999	54.1	(49.0–59.0)	16.6	(13.2–20.7)	36.3	(32.2–40.5)	55.2	(48.1–62.0)	1.8	(1.1–2.8)
	2001	48.4	(43.8–53.0)	14.9	(13.2–16.7)	35.9	(32.7–39.4)	53.5	(48.2–58.7)	2.5	(1.8–3.4)
	2003	51.4	(48.1–54.8)	15.7	(13.5–18.1)	37.1	(34.4–40.0)	57.4	(51.9–62.8)	3.9	(2.2–6.8)
	2005	51.0	(46.5–55.4)	15.9	(13.6–18.5)	35.0	(31.1–39.1)	57.7	(53.4–61.8)	3.0	(2.1–4.2)
	2007	52.0	(48.3–55.6)	17.3	(15.2–19.5)	37.4	(33.8–41.1)	61.4	(56.7–65.9)	3.1	(2.2–4.3)
	2009	49.1	(46.0–52.2)	14.2	(12.7–15.9)	34.6	(32.2–37.0)	54.9	(51.7–58.0)	3.1	(2.4–4.0)
	2011	48.6	(46.1–51.0)	14.8	(13.6–16.0)	33.5	(31.6–35.4)	58.4	(54.0–62.7)¶**	2.9	(2.2–3.8)¶

Abbreviations: HIV = human immunodeficiency virus; CI = confidence interval; NA = not available.
* Had sexual intercourse with at least one person during the 3 months before the survey.
† During most recent sexual intercourse among students who were currently sexually active.
§ Used a needle to inject any illegal drug into their body one or more times during their life. Wording of this question changed substantially after the 1993 survey, so 1991 and 1993 data are not included.
¶ Significant linear effect (p<0.05).
** Significant quadratic effect (p<0.05).
†† Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

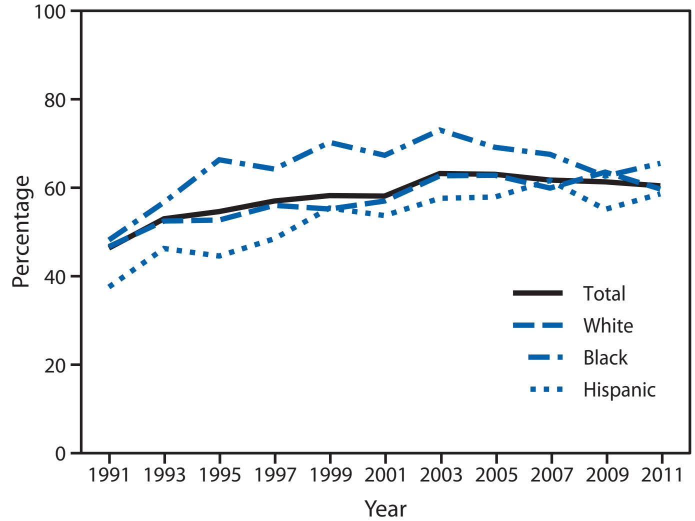
FIGURE 1. Percentage of high school students who had sexual intercourse with four or more persons during their life, by race/ethnicity* — Youth Risk Behavior Surveys, United States, 1991–2011†



* Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

† A significant linear effect (p<0.05) was observed for participants overall and for black and white students. A significant quadratic effect (p<0.05) was observed for participants overall and for white students.

FIGURE 2. Percentage of sexually active high school students who used a condom during most recent sexual intercourse, by race/ethnicity* — Youth Risk Behavior Surveys, United States, 1991–2011†



* Data by race/ethnicity are presented for black, white, and Hispanic students only. The three populations are mutually exclusive. All black and white students were non-Hispanic; Hispanic students might be of any race. The numbers of students from other racial/ethnic populations were too small for meaningful trend analysis.

† A significant linear effect (p<0.05) was observed for participants overall and for black, white, and Hispanic students. A significant quadratic effect (p<0.05) also was observed for participants overall and for black, white, and Hispanic students.

significantly during 2007–2011 (37.4% to 61.4% and then 58.4%). Among black students, condom use increased during 1991–1999 and then decreased during 1999–2011 (48.0% to 70.0% to 65.3%).

During 1995–2011, a significant linear increase occurred in the prevalence of injection drug use among black and Hispanic students (black: 1.1% to 2.4%; and Hispanic: 2.2% to 2.9%) (Table). Overall and among male, female, and white students, no significant change was detected.

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Editorial Note

The findings in this report suggest that previously reported progress in reducing some HIV-related risk behaviors among students (*4*) stalled overall and among certain populations of students. Most concerning are the decrease in condom use among black students since 1999 and the lack of any significant decrease since 1991 in the percentage of Hispanic students who have had sexual intercourse, four or more sex partners, and current sexual activity.

Another of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce HIV-related health disparities. In 1991, a gap of 32 percentage points was observed in sexual experience prevalence between black and white students (black: 81.5%; white: 50.0%). In 2011, this gap had been reduced to 16 percentage points (black: 60.0%; white: 44.3%). Large differences between black and white students in the prevalence of having four or more sex partners and current sexual activity also have been reduced over time. Nonetheless, black students still report significantly higher prevalence of sexual risk behaviors than white or Hispanic students and remain at increased risk for HIV infection and sexually transmitted diseases, a finding that underscores the importance of the decreasing trend in condom use among black students since 1999. YRBS data cannot isolate the effects of race/ethnicity from the effects of other factors on the prevalence of HIV-related behaviors. Additional research is needed to assess the effects of education, socioeconomic status, and cultural factors on the prevalence of these behaviors and to help intensify HIV prevention efforts in the communities where HIV infection is most heavily concentrated (*1*).

What is already known on this topic?

One of the three primary goals of the *National HIV/AIDS Strategy for the United States* is to reduce the number of persons who become infected with human immunodeficiency virus (HIV). In 2009, young persons aged 15–29 years comprised 21% of the U.S. population but accounted for 39% of all new HIV infections.

What is added by this report?

Overall, decreases in sexual experience and having four or more sex partners did not change significantly beginning in 2001, and increases in condom use did not change significantly beginning in 2003.

What are the implications for public health practice?

To achieve the *National HIV/AIDS Strategy for the United States* goal of reducing the number of persons who become infected with HIV, renewed educational efforts that reach all students before HIV-related risk behaviors are initiated and that seek to delay the onset of sexual activity, increase condom use among students who are sexually active, and decrease injection drug use are warranted.

The findings in this report are subject to at least two limitations. First, these data apply only to youths who attend school and therefore are not representative of all persons in this age group. Nationwide, in 2009, of persons aged 16–17 years, approximately 4% were not enrolled in a high school program and had not completed high school (*5*). Second, the extent of underreporting or overreporting of self-reported behaviors cannot be determined, although the survey questions demonstrate good test-retest reliability (*6*).

The *National HIV/AIDS Strategy for the United States* recommends educating young persons about HIV before they begin engaging in behaviors that place them at risk for HIV infection (*1*), and the Community Preventive Services Task Force recommends risk reduction interventions to prevent HIV infection among adolescents (*7*). Although in another study a median of 90% of all public secondary schools in 45 states taught HIV prevention in a required course during 2010, the percentage that taught 16 specific topics varied widely (*8*).

To achieve the *National HIV/AIDS Strategy for the United States* goal of reducing the number of persons who become infected with HIV, further improvements in the prevalence of behaviors that contribute to HIV infection among young persons are needed. Renewed educational efforts that reach all students before risk behaviors are initiated and that seek to delay the onset of sexual activity, increase condom use among students who are sexually active, and decrease injection drug use are warranted.

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Notes from the Field

Outbreak of Influenza A (H3N2) Virus Among Persons and Swine at a County Fair — Indiana, July 2012

During July 12–16, 2012, the Indiana State Department of Health and the Indiana Board of Animal Health identified respiratory illness among swine and persons at a county fair held July 8–14. On July 16, specimens were collected from four persons with respiratory illness; two had become ill on July 12 and sought care at an emergency department, and two were identified as part of the subsequent public health investigation. All four persons were swine exhibitors or family members of swine exhibitors and had close contact with swine. On July 18, reverse transcription–polymerase chain reaction testing at the Indiana State Department of Health laboratory identified suspected influenza A (H3N2) variant (H3N2v) virus* in all four specimens. On July 21, partial genome sequencing at CDC confirmed H3N2v virus with the influenza A (H1N1)pdm09 virus M gene; the viruses detected in the four specimens are similar to 12 viruses detected in 2011 and one detected earlier this year (*1*). None of the four persons were hospitalized, and all have fully recovered.

Additionally, all respiratory specimens collected from a sample of 12 swine at the fair were positive for influenza A (H3N2) virus. The specimens were forwarded to the National Veterinary Services Laboratories of the U.S. Department of Agriculture for additional testing. Preliminary genetic analysis has shown a very high level of similarity between the gene sequences of H3N2v viruses from humans and the H3N2 viruses from swine.

Although human-to-human transmission of H3N2v has been limited in previous outbreaks (*1*), these viruses could change to transmit efficiently among humans. Clinicians who suspect influenza in persons with recent exposure to swine should obtain a nasopharyngeal swab or aspirate from the patient, place the swab or aspirate in viral transport medium, and contact their state or local health department to arrange transport and request a timely diagnosis at a state public health laboratory (*1*). Clinicians should consider antiviral treatment with oral oseltamivir or inhaled zanamivir in suspected cases (*2*). Persons who raise swine or come into close contact with swine at fairs or other venues should be aware of the potential risk for influenza transmission between swine and humans. To reduce this risk, preventive measures such as practicing frequent hand hygiene and respiratory etiquette are recommended. Persons also should avoid close contact with animals that look or act ill, when possible, and if experiencing influenza-like illness themselves, should avoid contact with swine. Additional guidelines on prevention of influenza transmission between humans and swine are available at http://www.cdc.gov/flu/swineflu/industry_guidance.htm.

Including the cases in this report, 17 infections with H3N2v virus with the influenza A (H1N1)pdm09 virus M gene have been reported since August 2011. Novel influenza A virus infection in humans is a nationally notifiable disease (*3*) and a reportable disease under International Health Regulations (*4*). State public health laboratories should contact CDC and send all suspected novel influenza A specimens for confirmatory testing. Additional information about H3N2v is available at http://www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm.

Reported by

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* Influenza viruses that circulate in swine are called swine influenza viruses when isolated from swine, but are called variant viruses when isolated from humans. A variant virus (human isolate) might or might not have the M gene from the influenza A (H1N1)pdm09 virus, along with other genetic changes. Seasonal influenza A (H3N2) viruses that circulate worldwide in the human population have significant antigenic and genetic differences from influenza A (H3N2) viruses circulating in swine. Additional information available at http://www.who.int/influenza/gisrs_laboratory/terminology_ah3n2v/en/index.html.

Errata

Vol. 59, No. 53

In “Summary of Notifiable Diseases, United States, 2010” multiple errors occurred. On page 20, under Trichinellosis, the first sentence should read: **“No outbreaks were reported in 2010, which marks the first year since 2004 that only isolated cases were reported (*1–3*).”**

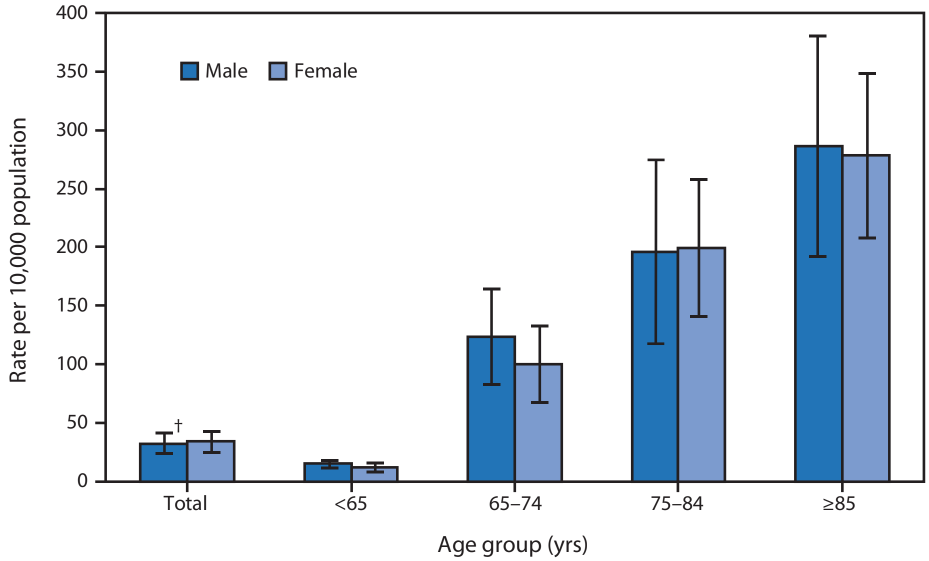
On page 103, in “Table 12. Number of deaths from selected nationally notifiable infectious diseases — United States, 2002–2008,” in the row for Trichinellosis, the number of deaths for 2008 should read: **“0.”**

Multiple errors occurred with probable case counts for Spotted Fever Rickettsiosis. On page 25, in “Table 1. Reported cases of notifiable diseases, by month — United States, 2010,” probable cases under Spotted Fever Rickettsiosis should read: **“Jan. 7, Mar. 24, Apr. 42, May 144, June 217, July 281, Aug. 305, and Total 1,822.”** On page 35, in “Table 2. Reported cases of notifiable diseases, by geographic division area — United States, 2010,” probable cases under Spotted Fever Rickettsiosis should read: **“Kansas —, W.N. Central 278, and Total 1,822.”** On page 40, in “Table 3. Reported cases and incidence of notifiable diseases, by age group — United States, 2010,” probable cases and rates under Spotted Fever Rickettsiosis should read: **“5–14 yrs, 125; 15–24 yrs, 161, (0.37); 25–39 yrs, 329, (0.53); 40–64 yrs, 841, (0.84); >65 yrs, 330, (0.83); and Total 1,822.”** On page 42, in “Table 4. Reported cases and incidence of notifiable diseases, by sex — United States, 2010,” probable cases and incidence under Spotted Fever Rickettsiosis should read: **“Male 1,171, (0.77); Female 618; and Total 1,822.”** On page 44, in “Table 5. Reported cases and incidence of notifiable diseases, by race — United States, 2010,” probable cases and incidence under Spotted Fever Rickettsiosis should read: **“American Indian or Alaska Native (1.94); Asian or Pacific Islander 17, (0.11); White 1,153; Race not stated 460; and Total 1,822.”** On page 45, in “Table 6. Reported cases and incidence of notifiable diseases, by ethnicity — United States, 2010,” probable cases and incidence under Spotted Fever Rickettsiosis should read: **“Non-Hispanic 1,091, (0.42); Ethnicity not stated 679; and Total 1,822.”** On page 93, in “Table 7. Reported incidence of notifiable diseases — United States, 2000–2010,” incidence for probable cases of Spotted Fever Rickettsiosis should read: **“2010, (0.59).”** On page 96, in “Table 8. Reported cases of notifiable diseases — United States, 2003–2010, probable total cases of Spotted Fever Rickettsiosis should read: **“2010, 1,822.”**

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Rate* of Hospitalization for Stroke, by Sex and Age Group — National Hospital Discharge Survey, United States, 2010



* Per 10,000 population. Hospitalization for stroke (cerebrovascular disease) is defined as a first-listed diagnosis on the medical record of 430–438, as coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification*. This includes hospitalizations for acute strokes, transient ischemic attack, and for late effects of stroke. Rates were calculated using U.S. Census Bureau 2000-based postcensal civilian population estimates.

† 95% confidence interval.

In 2010, hospitalization rates per 10,000 population for stroke for males and females increased with increasing patient age. For males, the rate per 10,000 ranged from 14.7 for those aged <65 years to 285.7 for those aged ≥85 years. For females, the rate ranged from 11.6 per 10,000 population for those aged <65 years to 277.4 for those aged ≥85 years. Within each age group, the rates for males and females were similar.

Sources: National Hospital Discharge Survey data (2010). Available at http://www.cdc.gov/nchs/nhds.htm.

Hall MJ, Levant S, DeFrances CJ. Hospitalization for stroke in U.S. hospitals, 1989–2009. NCHS data brief, no. 95, Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2012. Available at http://www.cdc.gov/nchs/data/databriefs/db95.htm.

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